

NOMAD

Production Sound System

User's Manual



Portable Multi-track Digital Audio Mixer / Recorder

Firmware Version: **2.61**

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NOTE: All specifications in this manual are subject to change without notice.

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AES-42 Power enable button	ENG Setup page	HP Beep Low Disk enable button	Warnings Setup page
Analog Inputs matrix	Card Mix 1-4 page	HP Beep Record/Stop enable button	Warnings Setup page
Analog Inputs matrix	Card Mix 5-8 page	HPF enable button	Analog Input Channel Setup page
Analog Inputs matrix	Output Bus Assign page	HPF Frequency select button	Analog Input Channel Setup page
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Attack select button	Input Limiter Parameters page	I/O Type select button	Input Configure-2 page
Attack select button	Output Limiter Parameters page	IFB Jam Mode select button	ZaxNet Setup page
Audio Revision display	About Nomad page	IFB Mode enable button	ZaxNet Setup page
Auto-trim Channel meter	Home page	IFB Test Tone enable button	ZaxNet Setup page
Auto Trim enable button	Mode page	Increment User-bits enable button	Timecode Setup page
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HP Beep Battery enable button	Warnings Setup page	Return # Level select button	Input Levels page

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OBJECT NAME	PAGE IT APPEARS ON
Return matrix	<u>Headphone-1 page</u>
Return matrix	<u>Headphone-2 page</u>
Return matrix	<u>Mono Out page</u>
Return matrix	<u>Tap/IFB Out page</u>
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Transmit Power select button	<u>ZaxNet Setup page</u>
Transport Commands select button	<u>ZaxNet Setup page</u>
Transport Keys select button	<u>ENG Setup page</u>
Transport Keys select button	<u>Mode page</u>
Transport Status	<u>Home page</u>
Transport Status	<u>Playback Control page</u>
Trim button	<u>Analog Input Channel Setup page</u>
Type button	<u>Analog Input Channel Setup page</u>
User-bits Data Style button	<u>Timecode Setup page</u>
Virtual Faders	<u>Home page</u>
Write Sound Report button	<u>My Nomad page</u>
XLR Output # select button	<u>Output Levels page</u>
Year select button	<u>Set Date & Time page</u>
ZaxNet matrix	<u>Headphone-1 page</u>
ZaxNet Version display	<u>About Nomad page</u>

Chapter I – Introduction

Overview

Nomad is a new concept in location sound recording and mixing. It redefines the bag audio system standard. A simplified user interface eliminates the need for hardware trim controls, and pan and PFL switches. Nomad eliminates any possibility of clipping analog inputs and provides metering, monitoring and mixing capabilities far beyond any other multi-track mixer/recorder. All of this in a package that is smaller, lighter and consumes up to 50% less power than the current best solution.

Depending on the model, Nomad can record up to twelve audio tracks and mix audio for a variety of applications. While it was created for use in the film and television industries, its exceptional audio quality and feature set make it a clear choice for any application that requires high resolution audio mixing and recording. Ten analog and eight digital inputs can be mixed to twelve output busses, of which two pairs are for headphones. The unit is designed to be the highest reliability recorder available. It records on solid-state media and consumes very little power. This makes it the best choice for location sound recording.

In addition, features like ZaxNet timecode transmission, wireless IFB transmission, wireless microphone remote control, visual slate display, MP3 recording and wireless file transfer make the Nomad a unique product that redefines the standard for location sound recording.

User Manual Conventions

Throughout this manual, the following conventions are used:

- **button** – refers to an on-screen (VIRTUAL) object that represents a parameter that can be changed and/or viewed.
- **CF card** – refers to any CompactFlash card that meets the tests outlined in [CompactFlash Cards {p.12}](#).
- **cycle** – is used when the selection rotates through several different possible selections.
- **cycle the power** – refers to turning power to the unit 'OFF', waiting a few seconds and then turning the power 'ON'.
- **default setting** – refers to the value that is loaded into the associated parameter, in the event that the **Recall Factory Defaults** button {p.43} is pressed. The value is highlighted.
- **key** – refers to a PHYSICAL object on the unit for the Operator to change and/or view a parameter or to navigate through the menu pages.
- **(A key) + (B key)** – Simultaneously press the two keys.
- **(key press shortcut sequence)** – It is necessary to move through the menu pages to get to the page where changes are to be made. The most efficient way to indicate this is through the sequence of keys/buttons to be pressed. For example: (**MENU knob** once → **My Nomad** button) means to press the **MENU knob** then press the **My Nomad** button in the page that is displayed.
- **{p.##}** – refers to the page number on which the item is described.
- **toggle** – is used when the selection switches between two possible selections.

NOTE: A green **NOTE** is a helpful hint or bit of information.

IMPORTANT: A blue **IMPORTANT** note indicates something more important than a green NOTE.

CAUTION: A yellow **CAUTION** note indicates a situation that, if ignored, could cause a significant problem.

WARNING: A red **WARNING** note indicates a situation that, if ignored, could cause damage to you, your equipment and/or your reputation.

System Features

Nomad-4

- 4 recording tracks on dual CompactFlash cards

Nomad-6

- 6 recording tracks
- 6-channel AES input with sample-rate conversion
- 6-channel AES output
- 2-channel AES-42 input with sample-rate conversion
- 6-channel auto-mixer
- ZaxNet IFB, timecode and wireless microphone remote control system

Nomad-8

- **(INCLUDES NOMAD-6 FEATURES and ...)**
- 8 recording tracks
- High-speed USB storage interface
- Wi-Fi USB modem file transfer
- 3 media recording capability with MP3 transcription

Nomad-12

- **(INCLUDES NOMAD-8 FEATURES and ...)**
- 12 recording tracks
- 10-channel auto-mixer

Common Features

Input

- 6 – XLR-3F mic/line level, balanced
- 4 – balanced line-level, camera return or mix
- 115dB dynamic range
- External slate mic input
- Zaxcom ultra low noise, ultra low distortion transformerless preamps

Output

- 4 – XLR-3M, balanced
- 3 – TA-5M, balanced (6 busses)
- Selectable output levels: 0dB, -10dB & -30dB
- 2 – mono and tape outputs: 1/8"
- 2 stereo headphone connectors: 1/4", 1/8"

Mixer

- 6-fader integrated mixing surface
- 32-bit floating point DSP
- 16 input x 16 output (pre-fader / post-fader / phase inversion)
- All effects and mixing in digital realm

Effects

- Analog Highpass filter
- Channel Dynamics: High-pass filter, 2 notch filters, delay, limiter, soft knee compressor
- Bus Dynamics: Soft knee compressor

Recording

- Record on dual CompactFlash cards
- Media instantly removeable
- Pre-record buffer: 0 - 10 seconds
- Files systems: MARF & FAT32
- Metadata: Standard iXML
- Sample-rates (kHz): 44.1, 47.952, 48, 48.048, 88.2, 96

Timecode

- Large timecode slate page
- SMPTE reader/generator
- Frame-rates: 23.98, 24, 25, 29.97NDF, 29.97DF, 30NDF, 30DF

Misc

- Sunlight readable color LCD
- Intuitive user interface
- Internal battery backup with auto switching
- Compatible with Mix-8 control surface
- .CSV Sound Log output
- Internal slate mic

What's included with the Nomad-4

- CD-ROM containing this PDF User's Manual
- 1 x 6 AA battery holder
- 1 x fader decal strip

What's included with the Nomad-6

- CD-ROM containing this PDF User's Manual
- 1 x 2.4GHz bendable IFB transmitter antenna
- 1 x 6 AA battery holder
- 1 x fader decal strip

What's included with the Nomad-8

- CD-ROM containing this PDF User's Manual
- 1 x 2.4GHz bendable IFB transmitter antenna
- 1 x WiFi dongle (not yet being delivered)
- 1 x 6 AA battery holder
- 1 x fader decal strip

What's included with the Nomad-12

- CD-ROM containing this PDF User's Manual
- 1 x 2.4GHz bendable IFB transmitter antenna
- 1 x WiFi dongle (not yet being delivered)
- 1 x 6 AA battery holder
- 1 x fader decal strip

Nomad Accessories

- Additional 6 AA battery holder
- External power supply (110 – 240 VAC, 50 – 60 Hz)
- 1 x fader decal strip

Media Recommendations**CompactFlash Cards**

We recommend SanDisk and Transcend cards. Don't use cards with "double write speed" features. Any modern card, 16 GB to 32 GB card (such as the 133x), should be fine. Do not use cards from questionable manufacturers as they will wear out quickly due to the lack of a good wear leveling algorithm.

If you are planning to record at 96 kHz, choose a card that claims 10 MB per second SUSTAINED write speed (MAX write speed does NOT count).

Once you have the cards in hand, considering testing their ability to keep up with the recording process:

- For Sampling-rates lower than 96 kHz – record all tracks for 10 minutes with pre-record set to 10 seconds (not available at 88 kHz and 96 kHz) at a higher sampling-rate than you expect to use, with all the effects you intend to use, enabled.
- For Sampling-rate equal to 96 kHz – record 1 more track than you expect to use for 10, with all the effects you intend to use, enabled.

If the unit kicks out of record, the card could not keep up.

Wait a few seconds for the pre-record buffer to fill. Press Record and watch the Time Left on Disk field. It should count faster than real time for a while as the pre-record buffer catches up. The faster it catches up, the better. This will not work for 88 kHz and 96 kHz as pre-record is not available.

Getting to Know Your Nomad Mixer / Recorder

The Zaxcom Nomad is a high-resolution audio mixer and recorder for reality television, surround recording and ENG. Lightweight and power efficient, it replaces multiple mixers and portable recorders that are currently used to mix audio for recording to camera via RF link or hardwired cable.

Building on the Deva location recorder, the Nomad has an extensive software and hardware history based on the continuous refinement of our location recording technology.

The functions of mixing, recording and audio effects are seamlessly integrated providing features, functionality and audio quality unobtainable with separate solutions. Nomad's eight mix busses are a perfect match for the new generation of ENG cameras that record four to eight tracks of audio.

The Nomad is ideal for use with Holophone™ and SoundField™ microphones.

This section describes the Nomad's physical features and their location.

Front Panel Description

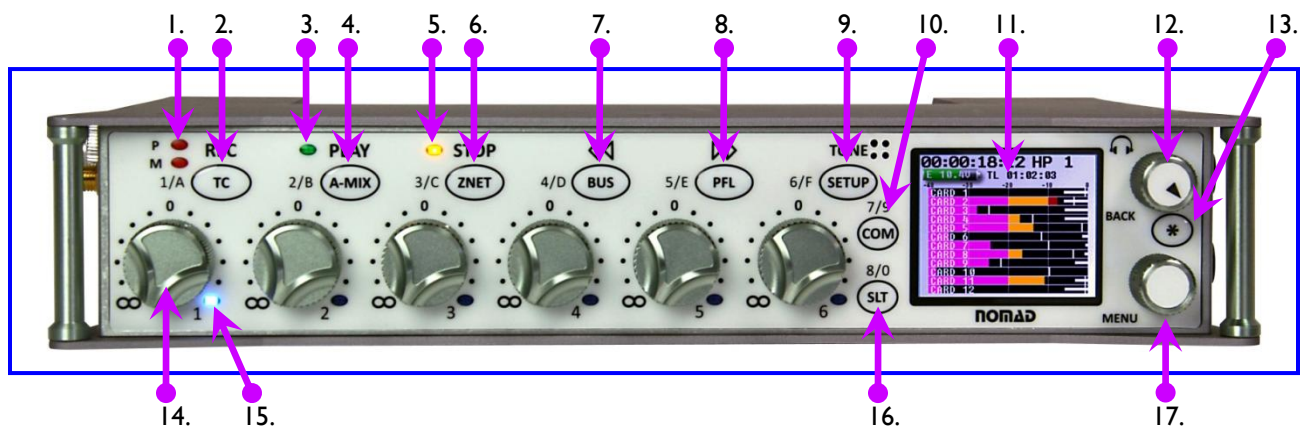


Figure 1-1 Front Panel Image

1. **Primary/Mirror Record LEDs**
While illuminated, indicates the unit is in Record mode and which media is being written to (**P**Primary Card, **M**irror Card).
2. **TC / REC / I / A key**
(One of the multi-function keys.)
 - A) Pressed alone, it opens the [Timecode Slate page](#) {p.26}, while in shifted mode, (see [Transport Keys parameter](#) {p.47}).
 - B) Pressed alone & held for one second, puts the unit into Record mode, while in shifted mode.
 - C) Pressed while the **MENU knob** is pressed, puts the unit into Record mode, while in shifted mode.
 - D) When a number is needed in a data entry field or need to select a channel #, press it for the number/channel 1.
 - E) When an "A" for user-bits is required, double click it.
3. **Play LED**
While illuminated, indicates the unit is in Playback mode.
4. **A-MIX / Play / 2 / B key**
(One of the multi-function keys.)
 - A) Pressed alone & held for one second, puts the unit into Playback mode, while in shifted mode, (see [Transport Keys parameter](#) {p.47}).
 - B) Pressed while the **MENU knob** is pressed, puts the unit into Playback mode, while in shifted mode.
 - C) When a number is needed in a data entry field or need to select a channel #, press it for the number/channel 2.

- D) When a “B” for user-bits is required, double click it.
5. **STOP LED**
While illuminated, indicates the unit is in Stop mode.
6. **ZNET / STOP / 3 / C key**
(One of the multi-function keys.)
- A) Pressed alone, it opens the [ZaxNet Channel page](#) {p.29}, while in shifted mode, (see [Transport Keys parameter](#) {p.47}).
 - B) (While in Stop mode) pressed alone & held for one second, opens the [False Start page](#) {p.56}.
 - C) (While in Record or Playback mode) pressed alone & held for one second, puts the unit into Stop mode, while in shifted mode.
 - D) (While in Record or Playback mode) pressed while the **MENU knob** is pressed, puts the unit into Stop mode, while in shifted mode
 - E) When a number is needed in a data entry field or need to select a channel #, press it for the number/channel 3.
 - F) When a “C” for user-bits is required, double click it.
7. **BUS / 4 / D key**
(One of the multi-function keys.)
- A) In Stop mode:
 - i. The first press, while in the ENG Home page ([Figure 2-3](#) {p.25}), opens the pan buttons for modification.
 - ii. The second press opens the [Bus Routing page](#) {p.29}.
 - B) In Playback mode, pressing it moves backward in the audio 10 seconds and continues the playback.
 - C) When a number is needed in a data entry field or need to select a channel #, press it for the number/channel 4.
 - D) In the [Metadata page](#) {p.36}, pressing it moves backward through the segments.
 - E) When a “D” for user-bits is required, double click it.
8. **PFL / 5 / E key**
(One of the multi-function keys.)
- A) Pressing (Only in [Home page](#) {p.23}) sends pre-fader listen to the primary headphone.
 - B) In Playback mode, pressing it moves forward in the audio 10 seconds and continues the playback.
 - C) When a number is needed in a data entry field or need to select a channel #, press it for the number/channel 5.
 - D) In the [Metadata page](#) {p.36}, pressing it moves forward through the segments.
 - E) When an “E” for user-bits is required, double click it.
9. **SETUP / TONE / 6 / F key**
(One of the multi-function keys.)
- A) In Stop mode, pressing it opens the [Analog Input Channel Setup page](#) {p.35}.
 - B) Pressed alone & held for one second, toggles tone generation on/off (see [ENG Setup page](#) {p.47}).
 - C) When a number is needed in a data entry field or need to select a channel #, press it for the number/channel 6.
 - D) When a “F” for user-bits is required, double click it.
10. **COM / 7 / 9 key**
(Comm Mic key)
- A) Press and hold it to open the current Comm source (int/ext) and the audio is routed according to the Comm (C) column in the busses. The source (**INTERNAL/EXTERNAL**) is selected with the **SLATE SOURCE** button on the [Mode page](#) {p.46} and the level is managed with the [Input Levels page](#) {p.51}.
 - B) When a number is needed in a data entry field or need to select a channel #:
 - press it for the number/channel 7
 - double click it for the number/channel 9
 - C) Pressed while the **MENU knob** is pressed, changes the configuration of the [Home page](#) {p.23} to 1 of 8 layouts.
11. **Color LCD Screen**
This a day-readable color LCD screen,
12. **HEADPHONE knob / BACK knob**

This is a multi-function control. Press it to backout of a menu to the previous menu. Turn it to adjust the headphone #1 volume.

13. **Star (*) key**

Pressing it:

- A) In the [Home page](#) {p.23}, it advances to the next configuration (see [Figure 2-3](#) {p.25}).
- B) In the [Bus Routing page](#) {p.29}, it inverts the input phase in the matrices of several pages.
- C) While powering-up, starts the software update process (see [Upgrading the Firmware in Each Unit](#) {p.71})

14. **Fader 1 (of 6 total)**

Each of these can be assigned to any channel or combination of channels, or act as a hardware trim knob.

15. **Fader 1 SOLO LED (of 6 total)**

It indicates which fader is active for Auto-trim.

16. **SLT / 8 / 0 key**

(Slate Mic key)

- A) Press and hold it to open the current Slate source (int/ext) and the audio is routed according to the Slate (**S**) column in the busses. The source (**INTERNAL/EXTERNAL**) is selected with the **SLATE SOURCE** button on the [Mode page](#) {p.46} and the level is managed by the [Input Levels page](#) {p.51}.
- B) When a number is needed in a data entry field or need to select a channel #:
 - press it for the number/channel 8
 - double click it for the number/channel 0

17. **MENU knob / SHIFT key**

This is a multi-function control. Turn it to select one of the menu items. Press it to select the currently highlighted menu item. In a few situations, pressing it while pressing another key changes what happens while pressing that second key.

NOTE: while scrolling through a parameter with a long list, pressing the **MENU** knob while turning it will often speed up the scroll speed by 10 times.

Left Side Description

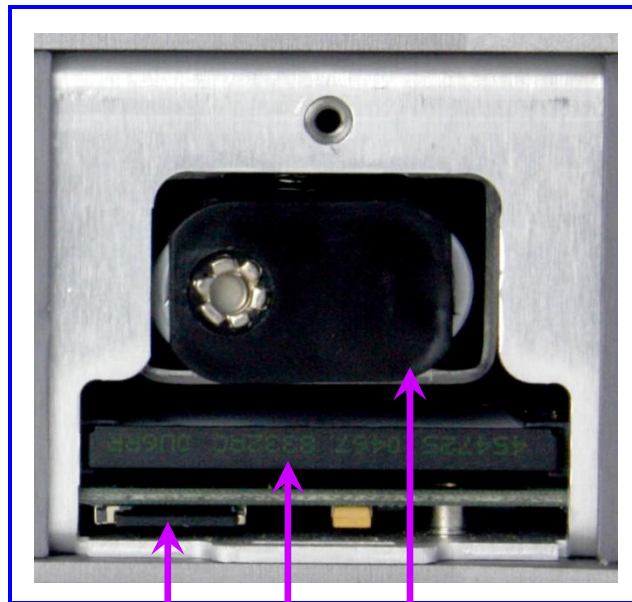
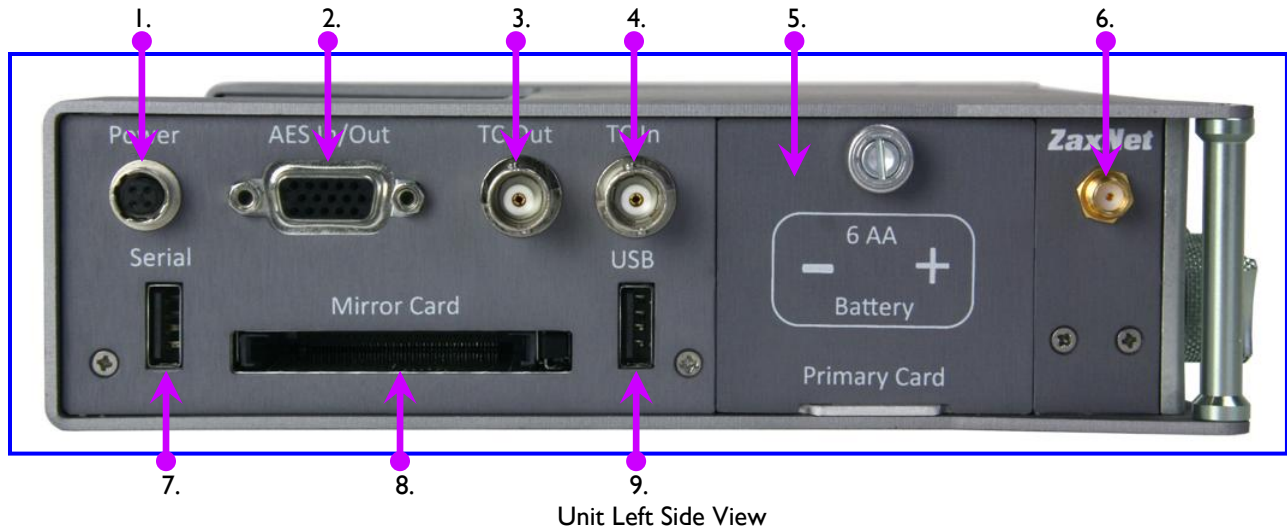


Figure 1-2 Nomad Left Side Images

1. **External Power connector (Hirose-4F)**
(8 to 18 VDC {1/2 A @ 12 VDC}) (See [Power Connector \(Hirose-4 Connector\)](#) {p.69}.)

WARNING: Do NOT connect the external power connector to a source higher than 18.0 VDC.

This is the **ABSOLUTE** upper limit. If you exceed it by even 0.1 VDC, you will **BLOW** the unit's power supply and require it to be sent in for maintenance. The warranty will be **VOID** if it is determined that the power supply was blown by violating this warning.

2. **AES Input/Output connector (DE-15F)**
(See [AES Digital Input / Output Connectors \(DB-15\)](#) {p.70}.)
3. **TC Output connector (BNC)**
4. **TC Input connector (BNC)**

5. Battery Door

The Silver knob rotates clockwise to lock the battery compartment door. Inside, you will find space for the battery carrier with 6 AA batteries installed, a slot for the Primary CF card and a slot for the MicroSD card.

For CompactFlash card recommendations, see [CompactFlash Cards](#) {p.12}.

WARNING: Use **ONLY** NiMH rechargeable or Lithium batteries. If you use ANY other chemistry, they will EXPLODE and SEVERLY damage or DESTROY the unit.

YOU HAVE BEEN WARNED!!!!

WARNING: While Lithium batteries are installed, **DO NOT** connect the unit to external power. There is no way to disable the built-in charger. If you do, they will EXPLODE and SEVERLY damage or DESTROY the unit.

YOU HAVE BEEN WARNED!!!!

CAUTION: Always observe the correct battery polarity. The negative contact on the battery is always connected to the spring contact in the carrier.

NOTE: While the batteries are installed and the unit is receiving external power, the internal charger is designed to keep the batteries topped-up and ready to use when external power is lost.

The built-in charger may take up to 24 hours to fully recharge the installed NiMH batteries.

6. ZaxNet RF connector (SMA-F)**7. Serial connector (USB)**

For future expansion. It will NOT work with a USB keyboard.

8. CompactFlash Mirror Media Slot

For CompactFlash card recommendations, see [CompactFlash Cards](#) {p.12}.

9. USB port

For USB capable external drives.

10. MicroSD Media Slot

A card is installed.

11. CompactFlash Primary Media Slot

Unlike the Mirror card slot, there is no button to press when you want to remove this card. Just grab the card's lip with your fingers and pull. Be sure to keep it aligned straight as you remove it and install it.

12. Internal Battery Compartment

It takes a battery carrier with 6 batteries installed.

NOTE: It is possible to insert the battery carrier incorrectly. Even if you insert it with the contacts in but reversed it will do NO harm to the unit because there is reversed current protection. It just won't turn on.

WARNING: The **WORST** thing you can do is insert the battery carrier with the connectors facing out. If you do, and you close the door. The carrier **WILL** short against the door and the resulting **FIRE** and/or **EXPLOSION** will destroy the unit.

Right Side Description

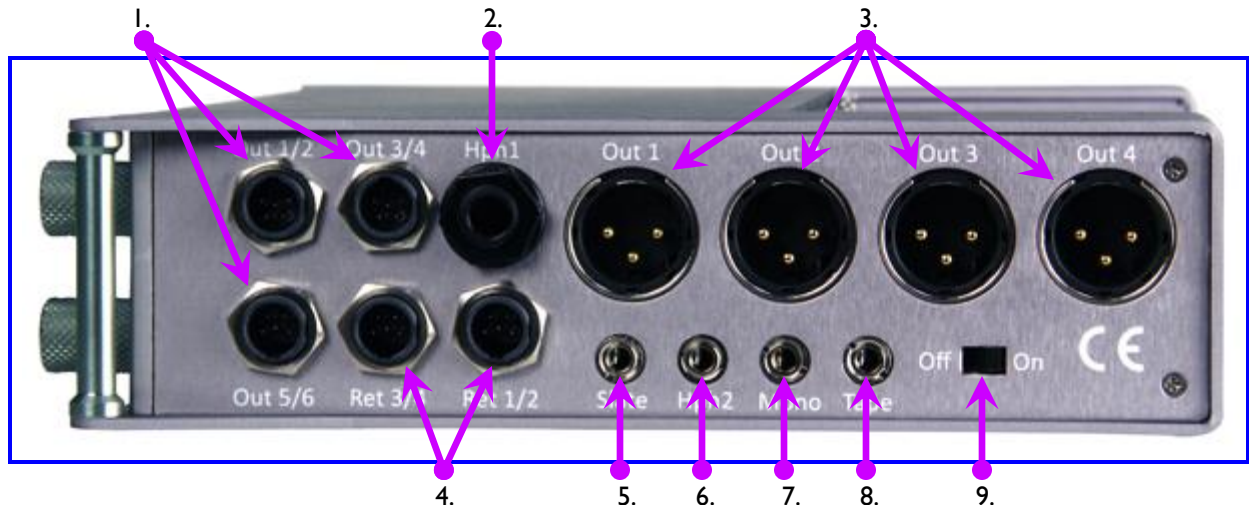


Figure 1-3 Nomad Right Side Image

1. **Outputs 1 – 6 (TA-5M)**
Outputs 6 channels of audio. The levels are managed by the [Output Levels page](#) {p.52}. (See [Audio Input / Output Connectors \(TA-5\)](#) {p.69}.)
2. **Headphone #1 (1/4" stereo jack)**
Optimal 100 ohm impedance. This is for the Operator's headphones. The source(s) are configured using the [Headphone-1 page](#) {p.35}. (See [Headphone Output Connectors \(1/4" TRS or 1/8" TRS\)](#) {p.70}.)
3. **Outputs 1 – 4 (XLR-3M)**
Outputs 4 channels of audio. The levels are managed by the [Output Levels page](#) {p.52}. (See [Audio Input / Output Connectors \(XLR-3\)](#) {p.69}.)
4. **Returns 1 – 4 (TA-5F)**
These are the returns from 2 cameras. They are referred to as analog input channels 7 – 10. Their levels are managed by [Input Levels page](#){p.51}. (See [Audio Input / Output Connectors \(TA-5\)](#) {p.69}.)
5. **External Slate Microphone (1/8" (3.5mm) TRS jack)**
This is where you plug-in the external Comm / Slate microphone. The source (**INTERNAL/EXTERNAL**) is selected with the **SLATE SOURCE** button on the [Mode page](#) {p.46} and the level is managed by the [Input Levels page](#) {p.51}. (See [Slate Microphone Input Connector \(1/8" TRS\)](#) {p.70}.)
6. **Headphone #2 (1/8" (3.5mm) TRS jack)**
Optimal 100 ohm impedance. This is for the Boom Operator's/Audio Assistant's headphones. The source(s) are configured using the [Headphone-2 page](#) {p.31} and the level is managed by the [ENG Setup page](#) {p.47}. This could be a wired or wireless one-way connection. (See [Headphone Output Connectors \(1/4" TRS or 1/8" TRS\)](#) {p.70}.)
7. **Mono Output (1/8" (3.5mm) TRS jack)**
This can be used to send mono audio out to where it is needed. The source(s) are configured using the [Mono Out page](#) {p.31} and the level is managed by the [Output Levels page](#) {p.52}. See [Mono & Tape Output Connectors \(1/8" TRS\)](#) {p.69}.
8. **Tape Output (1/8" (3.5mm) TRS jack)**
This can be used to send mono audio out to where it is needed. The source(s) are configured using the [Tape/IFB Out page](#) {p.31} and the level is managed by the [Output Levels page](#) {p.52}. See [Mono & Tape Output Connectors \(1/8" TRS\)](#) {p.69}.

NOTE: Whatever is sent to the Tape Output bus is also sent to the ZaxNet transceiver to be sent out wirelessly as the IFB audio (assuming the **IFB MODE** button in the [ZaxNet Setup page](#) {p.53}) is set to **TX**)

9. **Power Switch**

Back Side Description

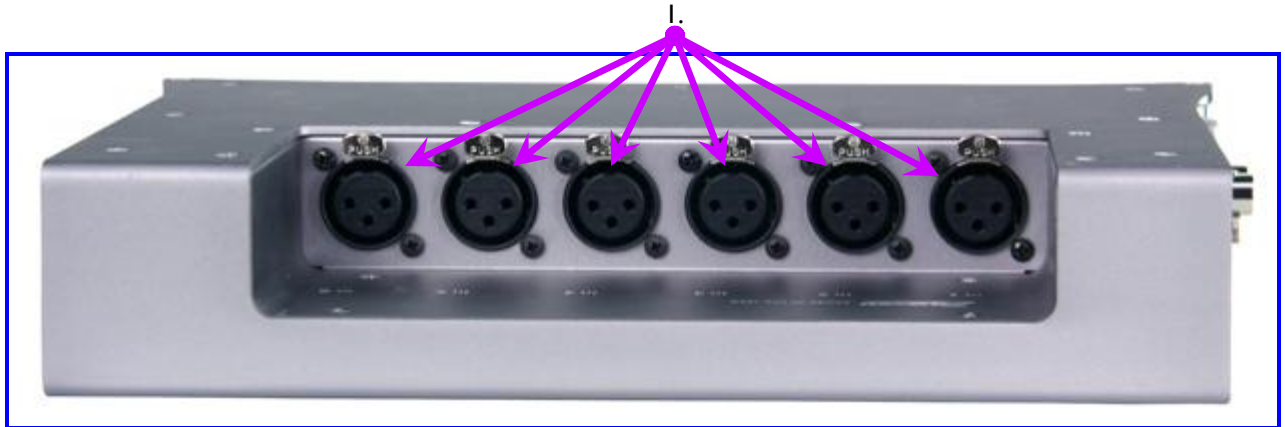


Figure 1-4 Nomad Back Side Image

1. Mic/Line-level Input 1 – 6 (XLR-3F)

Microphone(s) and/or line-level sources are connected here. (See [Audio Input / Output Connectors \(XLR-3\)](#) {p.69}.)

General Graphic User-interface Operation

Here are the keys to using the menu system (as seen through the color LCD screen on the front of the unit):

- To get into the Menu System, press any of the multi-function buttons (see the descriptions for each of the function keys on the [Front Panel Description](#) {p.13}) to open the underlying menu page.
- To scroll through that page, turn the **MENU knob**. As you turn it, a highlighted line will indicate the current line.
- If there is a ">" symbol on the far right side, there is a separate page with additional details. If you press the **MENU knob**, that next page will be displayed.
- If the line does not have a ">", the line is an individual parameter that can be changed. On the right half of the line will be the current setting for that parameter. To open the parameter to change it, press the **MENU knob**. The current value will be surrounded by a box. There are two different types of values that can be entered:
 - Value list – the current value is displayed. There are two ways two ways to change it:
 - If the value is a number, use the multi-function keys to enter the new number or turn the **MENU knob** to scroll through the available choices.
 - If the value is a word or phrase, turn the **MENU knob** to scroll through the available choices.
 - Once the new correct value is displayed, press the **MENU knob**. This will enter the new value and close that parameter to further changes.
 - Free form text – the [Enter Text page](#) {p.56} is displayed, containing the current value. Use the **MENU knob** to scroll through the keyboard buttons, and press the **MENU knob** to enter the selected character. If you select the "<-" or "->" button, the cursor in the data field is moved one character left or right. Once the new correct value is displayed, press the **MENU knob**. This will enter the change and close that parameter to further changes.
- Once you are finished with the current page, press the **HEADPHONE knob / BACK knob**, to back out of it.

NOTE: In the **Enter Text page**, there is a new button (+I). If you are in the **SCENE** or **TAKE** button, press the **+I** button to increment the displayed value.

IMPORTANT: If you will be turning off the power after making a change to the Menu, wait at least 5 seconds before flipping the switch. If you don't, the last change may NOT be saved.

Analog Inputs

Nomad contains six super low distortion and super low noise microphone preamplifiers that provide studio quality performance in a portable package. Each input can be switched between mic-level and line-level operation, and features a powerful 48V phantom power supply.

A hardware based highpass filter is used to limit distortion due to rumble and wind noise. Each input uses two A/D converters to achieve an unprecedented 135 dB of dynamic range. If enabled, a soft knee compressor automatically normalizes the input to a more typical 115 dB. This compression system uses a look-ahead buffer to provide the

most natural sound available in a location mixer/recorder. The input architecture uses a transformer free design. Transformers contribute a large quantity of low frequency distortion, something that is always undesirable.

In practical use, set the microphone inputs to peak between -20 dBFS and -10 dBFS, as is the case in any typical mixer.

Nomad allows an input to exceed the typical 0 dBFS range by 20 dB without any risk of clipping. With 135 dB of input dynamic range, 30 dB of headroom and a floating point mixing system, the need for any use of the trim control during normal operation is eliminated. Faders are all that is needed to control the level of an input channel mixed to an output channel or recorded track.

IMPORTANT: (From Howy)

The user should be aware that an audio signal that is higher than full scale, while not clipping at the input, will eventually clip at its destination (such as a 24bit WAV file or an output). Any input that is exceeding 0 dBFS must eventually be brought down to an acceptable level by either a fader or a limiter/compressor. The headphone system is specifically designed to insure that the user will hear any clipping that eventually takes place in the unit, whether it is a disk bus or an output bus.

Input Limiters

When mixing for film and TV production, it is desirable to record audio with the widest possible dynamic range. The problem is that actors can vary their performance in a way that is unexpected and cause input clipping and limiter distortion. We designed Nomad so it is unnecessary to use trim controls and limiters to prevent input preamp distortion, typical of unexpected high levels of audio.

Even though the traditional input limiter is not needed, a soft knee compressor is provided on each mic/line input, each output and each recorded bus.

Digital Inputs

Nomad has four AES input pairs with sample-rate conversion, allowing each input to have a different sampling-rate. This is key on-location, where it's not always possible to lock external AES sources.

Mixing

Nomad can mix sixteen inputs to eight output busses and record up to twelve tracks* on the internal CF card. The mixer has infinite routing capability. Any input can be routed to any output pre-fader, post-fader, with or without the phase inverted. The Mix-8 control surface can also be used to form an all digital location recording and mixing package.

* Nomad-4 – max 4 tracks, Nomad-6 – max 6 tracks, Nomad-8 – max 8 tracks, Nomad-12 – max 12 tracks

Recording

The Nomad records to the Primary Card using the Mobile Audio Recording Format (MARF) II. MARF was developed to be fault tolerant, ensuring that should power be lost while recording, ALL audio up to that point will be recoverable. The MARF system, and its audio-centric operation, has eliminated several of the reliability issues associated with FAT32 recording.

While the mirroring process is enabled, the audio files are copied to the Mirror Card, which is in standard FAT32 format.

Both the Primary and Mirror Cards are CF cards. CF cards were chosen because of their immunity to extreme temperature and motion. The Mirror media can be given to Post or copied to any computer.

Metering

The Nomad provides metering of all input channels and output busses in eight different formats, based on user preference. Channel metadata is superimposed on meters to aid in meter identification. Signal levels are color coded to aid in rapid identification of overload conditions.

RF Interference Protection

The Nomad was designed from the ground up to operate in close proximity to sensitive receivers. Wireless devices can coexist in the sound bag with the Nomad running from the same power source.

IMPORTANT: (From Howy)

To avoid ground loops and RFI, insure all equipment is connected by 16+AWG power and ground wiring.

Timecode

A full-featured SMPTE timecode interface is standard. All common frame-rates and timecode sampling-rates are supported. In addition, the Nomad includes the auto-load function, allowing the unit to automatically enter Record and Stop modes based on incoming timecode. Be aware, the Nomad's timecode clock continues to run, with reduced accuracy, after the power is turned 'OFF'.

Input Sampling-rate Conversion

The Nomad will accept any unlocked AES signal with a sampling-rate of 44.1 to 96 kHz. The dynamic range of the sample-rate conversion is 124 dB, offering completely transparent conversion of digital audio from one sample-rate to another.

Sequence of Nomad Components

To better aid the user in using and understanding his Nomad recorder, the following list describes the Analog to Analog sequence for each component that sees your audio:

1. Input connector
2. Input Limiter
3. Input Gain
4. Analog-to-Digital Converter
5. Prefader Meter
6. Input Compressor
7. Delay Processor
8. Equalization Processor
9. Linear Fader
10. Digital Input Router
11. Disk Limiter
12. Input Meter
13. Home Meter
14. Recorder Track
15. Digital Output Router
16. Output Fader
17. Output Limiter
18. Output Meter
19. Digital-to-Analog Converter
20. Output Connector

Obviously, a digital input or output is going to follow the same sequence, bypassing the analog input or output portion (highlighted), as appropriate.

Associated Products User's Manuals

Zaxcom Digital Wireless System, Transmitters – User's Manual
 Zaxcom Digital Wireless System, Receivers – User's Manual
 Zaxcom Digital Wireless System, IFB & Remote Control – User's Manual
 Zaxcom Miniature Recorders – User's Manual
 Zaxcom Control Surfaces – User's Manual
 Zaxcom ZaxConvert Utility – User's Manual

Product Support

Download the latest **Firmware** from: http://www.zaxcom.com/support_software_updates.htm.
 Download the latest **User Manuals** from: http://www.zaxcom.com/support_instructional_manuals.htm.
Register your new Zaxcom Product at: http://www.zaxcom.com/support_product_registration.htm.
Submit Technical Questions at: http://www.zaxcom.com/support_submit_tech_questions.htm.
 Request an **RMA #** at: http://www.zaxcom.com/support_repair_services.htm

Chapter 2 – Software Guide

The Nomad is a very sophisticated recording device. The heart of the system is the software used to operate the device. This chapter describes every Nomad page and the functions within each.

Boot-up Sequence page

Page purpose: This page shows the processing necessary to initialize the Nomad.

How to get here: Turn 'ON' the Nomad.

```
Dec 28 2011 14:41:41   gM:V3
Init RTC:  Temperature=79F:78F  done
HD-CF reset(2)
INT=0.0  EXT=0.0V  48V=8.1V  C=0.0V
Aud=13 Main=55 DSP=0B
Flash system init:
Loading saved settings...
==== DSP SPEED = 294.912 ====
Initializing battery backed clock
RTC INIT PASSED Minutes ON = 26106
Synchronizing clocks...
Initializing audio...
INT DISK: SN=20081114      CF1332C0
      TRANSCEND (16.0GB)
-- Checking folder[1] (13 segs) --
InitModules...
```

Figure 2-1 Boot-up Sequence page

IMPORTANT: If you ever see **RED** text during boot-up, make note of it.

How bad is it to see RED text during boot-up? It depends. It may mean there are errors on the card or something is corrupted in non-volatile memory.

NOTE: Powering on the unit and holding the **MENU knob** (just after the unit has started printing text) will freeze the display and allow the Operator to see any warning(s).

Home page

Page purpose: This page displays the current status for the recorder and its major components.

How to get here:

- Turn the power on and let the system initialize.

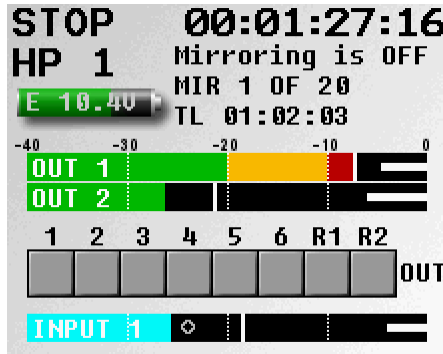


Figure 2-2 Home page (ENG Home page selected)

Page Notes

Once the boot process has completed, one of the configurations shown in [Figure 2-3](#) {p.25} is displayed.

Transport Status field

([Figure 2-2](#) {p.23} displays **STOP**)

Located at the top of the page, it displays the current operating mode (**RECORD**, **PLAY** or **STOP**).

Timecode field

([Figure 2-2](#) {p.23} displays **00:08:39:15**)

Located at the top of the page, it displays the current timecode based on the source selected in the [Timecode Setup page](#) {p.28}.

Headphone Monitor field

([Figure 2-2](#) {p.23} displays **HP 1**)

Prefader Listen field

Once the **PFL** key is pressed, the name in the Headphone Monitor field is replaced with **PFL** alternating with the selected channel number(s) as follows:



Pressing the corresponding multi-function key will select the channel you are listening to. If you want to listen to multiple channels at the same time just hold an additional multi-function key for approximately 1 second to add that channel to the PFL circuit.

Press the **HEADPHONE knob** to restore normal headphone monitoring.

Mirror Status

([Figure 2-2](#) {p.23} displays **MIR 1 OF 20**)

Battery icon

([Figure 2-2](#) {p.23} displays **E** inside of the **Battery icon**)

It indicates the power source (**I** / **E**), a numeric display of the current voltage and a color bar, indicating the state of charge. Once the voltage reaches the level specified in the [Warnings Setup page](#) {p.51}, the color of the background changes to Red and optional beeps to the primary headphones are triggered.

Time Left (TL) display

([Figure 2-2](#) {p.23} displays **TL 01:02:03**)

This field indicates the recording time remaining on the Primary card, at the current track count and sampling-rate.

Meters

([Figure 2-2](#) {p.23}) displays **OUT 1**, **OUT 2** and **INPUT 1**)

There are several selectable metering configurations to choose from.

The color of the left half of the meter indicates the source type being metered:

- Light blue for an input
- Green for an output bus
- Purple for a recorded track

The track name is indicated within the meter itself to aid in channel identification. If a compressor is engaged, a white gain reduction indication will appear at the right side of the meter if the compression threshold has been exceeded.

IMPORTANT: As the gain reduction indicator proceeds from the right edge toward the left, more compression is being applied to that channel's audio. Once it reaches -10dBFS , it will become more noticeable. To minimize the compressor's impact, reduce the trim or linear fader.

Virtual Fader

(Virtual Fader Mix Home page in [Figure 2-3](#) {p.25})

With the Virtual Fader Mix Home page configuration display, virtual faders (V-Fader) appear on tracks 7 – 10 and are blue with white vertical highlights. To access them, press the **MENU knob**. The V-Fader for track 7 changes to mostly white with blue vertical highlights. To adjust, turn the **MENU knob**. Once you have that one set to your liking, you have two choices:

- to move it to the next V-Fader, click the **MENU knob**
- to exit from adjusting V-Faders, click the **HEADPHONE knob**

Using the six input faders and the four virtual faders, 10 channels be easily mixed without an external hardware fader panel.

NOTE: The virtual faders are fixed and can not be reassigned to other channels.

Track Enabled Verification

(Card Track Home on [Figure 2-3](#) {p.25})

With the Card Track Home page configuration displayed, it is possible to identify tracks that are not enabled (not being recorded).

- Disarmed tracks in the middle will have a line drawn through the entire meter from side to side.
- Disarmed tracks at the bottom will be removed from the page.

Tracks can't be enabled/disabled from this page but, they can be in the [Record Enables page](#) {p.37}.

NOTE: For Nomad-6, 8 and 12, the Card Track Home page will never have fewer than 6 tracks.

Generating Tone

To toggle tone generation on/off, press and hold the **SETUP** key for approximately one second. Tone level and frequency can be adjusted in the [ENG Setup page](#) {p.47}. Nomad's tone generator is individually routable to each output and recordable channel via the [Bus Routing page](#) {p.29}.

ENG /EFP Bag Operation

([Figure 2-2](#) {p.23})

With the ENG Home page configuration displayed, there is an 8-channel routing matrix at the bottom of the page. It also has output busses 1 and 2, as well as the input meter that follows the Auto-trim function. To use the pan-routing capability, go to the [Mode page](#) {p.46} and enable the appropriate **PAN COPY x/y** entry(s).

NOTE: by default 1 and 2 are always enabled.

Once enabled, go to the [ENG Setup page](#) {p.47}, and press the **BUS** key to enter the PAN routing selections (the pan matrix is highlighted). Rotate the **MENU knob** to select the input you want to PAN. Pressing the **MENU knob** will cycle the assignment as left, center or right to each input pair that was selected in the [Mode page](#) {p.46}.

NOTE: If necessary, holding the **MENU knob** down for 1 second will reverse that cycle for 1 selection.

The PAN routing selection is simply a short cut and controls the cross-points in the [Output Bus Assign page](#) {p.30}. It can only route post-fader analog inputs to the output busses. Any other routing must be done in the

[Bus Routing page](#) {p.29}. While in the ENG Home page configuration, press the **BUS** key twice to enter the **Bus Routing page**.

Auto-trim Channel Meter

([Figure 2-2](#) {p.23} displays **INPUT 1**)

Auto-trim eliminates the need for a separate hardware trim knob for each analog input. Auto-trim mode can be enabled in [Mode page](#) {p.46}.

While it is enabled and a fader is “touched”, two things come into play:

- the blue LED next to the fader illuminates to indicate the active channel for Auto-trim.
- the **MENU knob** functions as the input trim for the channel. Turning the **MENU knob** adjusts the trim level for that input and indicates it with a trim indicator (white diamond outline) displayed in the meter.

NOTE: Although you might think the trim indicator's position relates to a specific value, it does not. It is used for relative adjustment only.

While Auto-trim is not enabled, use the TRIM parameter in the [Analog Input Channel Setup page](#) {p.35}.

Home Page Configurations

([Figure 2-3](#) {p.25})

There are eight different **Home page** configurations. You can quickly cycle through all of them by pressing the **STAR** key. It is possible to store two of them for quick access.

Store/Recall a Home page Configurations

To store a configuration under the **COM** key, press and hold the **MENU knob**, and press the **COM** key. Every time you press the **COM** key, the next configuration in sequence is displayed. When you are happy with the configuration being displayed, release the **MENU knob**. If you have selected another configuration and want to return to the **COM** key setting, press the **MENU knob** and **COM** key together.

The same process can be used to store one configuration under the **SLT** key.

Alternate Home page Configurations

Each press of the **STAR** key changes the default **Home page** configuration in the following sequence:

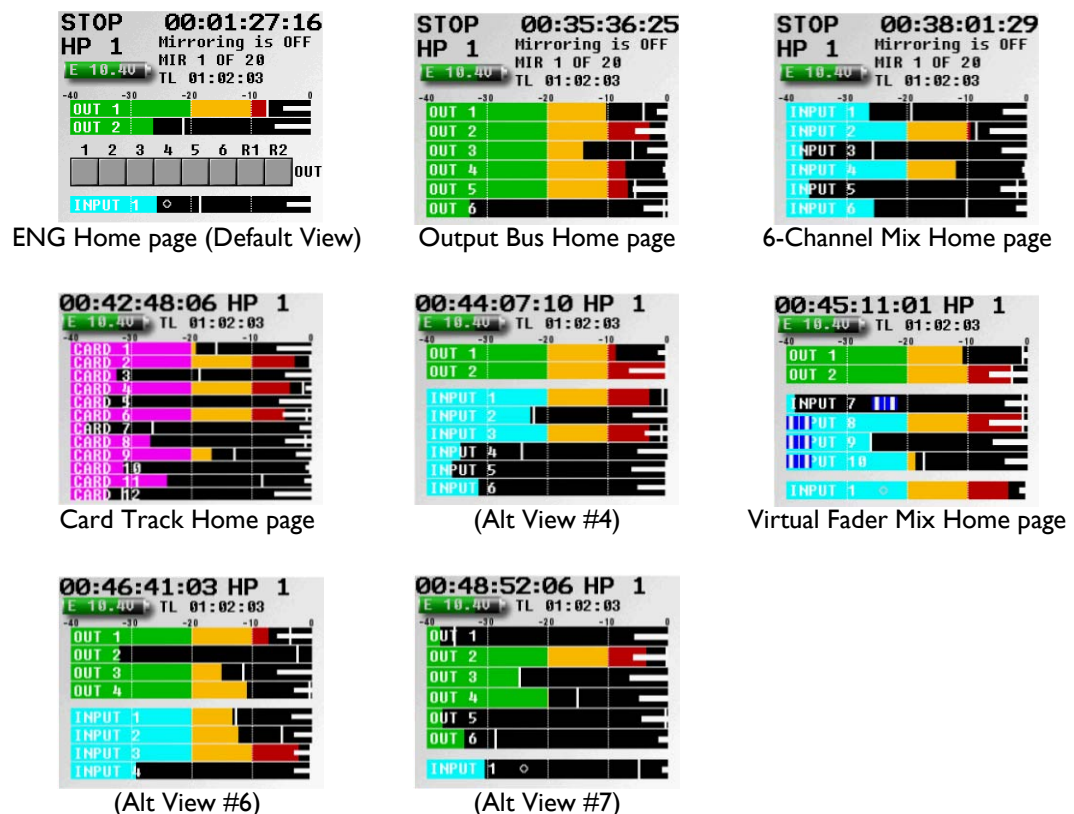


Figure 2-3 Available Home page Configurations

Home page Changes Based on Transport Mode

Pressing the **MENU knob** & **TC** key (Record) puts the unit into Record mode and changes the text displayed in the top of the **Home page** as follows:

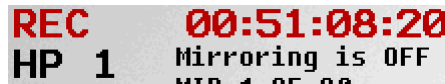


Figure 2-4 Indications of Record mode

Pressing the **MENU knob** & **A-NET** key (Playback) puts the unit into Playback mode and changes the text displayed in the top of the **Home page** as follows:



Figure 2-5 Indications of Playback mode

Pressing the **MENU knob** & **ZNET** key (Stop) puts the unit into Playback mode and changes the text displayed in the top of the **Home page** as follows:

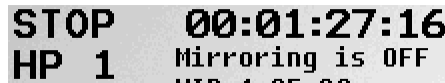


Figure 2-6 Indications of Stop mode

Timecode Slate page

Page purpose: This page displays the current audio timecode for recording by the associated camera(s) in a run-and-gun situation without having to resort to a digital slate.

How to get here:

- (TC key once)

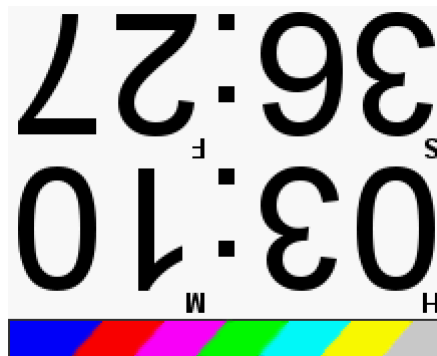


Figure 2-7 Timecode Slate page

This display is used to show a visual timecode slate to a camera. Pressing the **MENU knob** will freeze the display and cause a 1 frame long beep tone in the audio on any bus that is selected for tone output. This is used to provide sync for the camera to match picture and sound. The slate numbers are intentionally up side down to make it easy for a camera person to shoot the numbers correctly. Just lean the screen away from your body and toward the camera.

Timecode page

Page purpose: This page displays the current running timecode of the internal TC generator, as well as the local user-bits. This page also displays incoming timecode, user-bits and frame-rate and provides several options for setting timecode.

How to get here:

- (TC key twice)

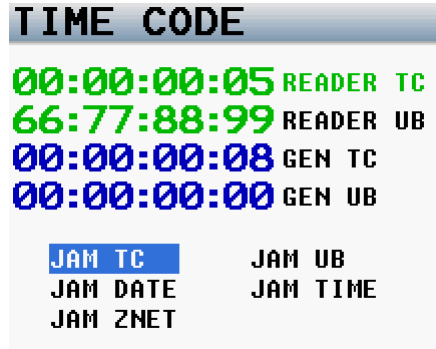


Figure 2-8 Timecode page

See the [Left Side Description](#) (p.16) for the timecode input and output. Two BNC connectors are used to connect directly to broadcast cameras or other TC sources.

Nomad contains a battery backed real-time clock. This clock is used to maintain running timecode.

NOTE: the battery should be changed every 2 years to maintain the capability.

The JAM buttons do a one time jam as follows:

- JAM TC – TC comes from another source, such as a camera or a master TC unit.
- JAM UB – User-bits come from another source, such as a camera or a master TC unit.
- JAM DATE – User-bits are created from the local date (YYMMDD00)
- JAM TIME – TC created from the local clock (HHMMSS00)
- JAM ZNET – TC comes from a source being received over ZaxNet.

Enter Timecode page

Page purpose: This page allows the Operator to manually enter a specific timecode and/or user-bits.

How to get here:

- (TC key three times)

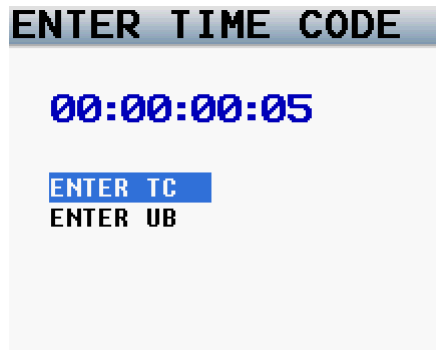


Figure 2-9 Enter Timecode page

This page allows for direct numeric entry of timecode and user-bit values. Rotate the **MENU knob** to select the desired entry position. Then use the function keys to enter a numeric value. In addition, the **COM** key and **SLT** key are used to enter two numbers each as indicated by the front panel overlay.

Once all 8 digits of the timecode (or user-bits) are entered, the unit will automatically jam the value.

NOTE: If you don't enter the entire 8 digits, press the **MENU knob** to force the jam.

Entering Timecode

A few of things to keep in mind while entering TC:

- Be sure to use 24-hour format.
- Leave the last two digits as **00**.
- Once you enter the last digit, the TC is entered immediately

Enter User-bit Data

A few of things to keep in mind while entering UB:

- Each character position can take a hex number (**0 – 9, A – F**).
- To enter A – F, double click the number keys 1 – 6.
- Once you enter the last digit, the UBs are entered immediately.

Timecode Setup page

Page purpose: This page determines how the timecode and user-bits will be used.

How to get here:

- (**TC** key four times)

TIME CODE SETUP	
TC MODE	FREE-RUN
TC FRAME RATE	23.98
TC DISPLAYED	GENERATOR
TC OUTPUT	GENERATOR
INCREMENT UBITS	OFF
UB DATE STYLE	EU DDMMYY

Figure 2-10 Timecode Setup page

TC Mode

To set the timecode mode, press the **TC MODE** button and select to appropriate mode. They are:

- **FREE-RUN** – timecode runs continuously from when it is started
- **REC-RUN** – timecode run while recording
- **CJAM** – timecode and user-bits are continuously updated from a connected source
- **CJAM TC** – timecode only is continuously updated from a connected source
- **CJAM UB** – user-bits only are continuously updated from a connected source

TC Frame Rate

To set the timecode frame-rate, press the **TC FRAME RATE** button and select the appropriate value. Nomad supports all standard frame-rates: **23.98** (23.976), **24**, **25**, **29.97** (29.97 NDF), **29.97DF** (29.97 DF), **30** (30 NDF), **30DF** (30 DF)

TC Displayed

To set what timecode is displayed, press the **TC DISPLAYED** button and select the appropriate choice. They are:

- **GENERATOR** – TC comes from the internal generator. The field displays the running TC.
- **CARD** – TC comes from the file being recorded or played-back. The field displays:
 - While in Playback – TC at the current point in the Take.
 - While in Playback and press Stop – TC at the point where playback will restart (by pressing play)
 - While in Record – TC being recorded during the Take, as it happens.
 - While in Record and press Stop – TC for the start of the last Take.

TC Output

To set what timecode is sent from the TC output connector, press the **TC OUTPUT** button and select the appropriate choice. They are:

- **GENERATOR** – TC comes from the internal generator.
- **CARD** – TC comes from the file being recorded or played-back. The output contains:
 - While in Playback – TC at the current point in the Take.
 - While in Playback and press Stop – TC at the point where playback will restart (by pressing play)
 - While in Record – TC being recorded during the Take, as it happens.

- While in Record and press Stop – TC for the start of the last Take.

If you just need to send running timecode to another device, set it to **Generator**.

If you want to control another timecode device with an Auto-Load capability, set it to **Card**.

Increment UBits

To set whether or not the user-bits will increment with each Take, press the **INCREMENT UBITS** button and select the appropriate choice.

UB Date Style

To set how the date, transmitted as part of the TC, is formatted, press the **UB DATE STYLE** button and select the appropriate choice.

ZaxNet Channel page

Page purpose: This page controls how ZaxNet interfaces with wireless kits on each audio input channel.

How to get here:

- (**ZNET** key once)

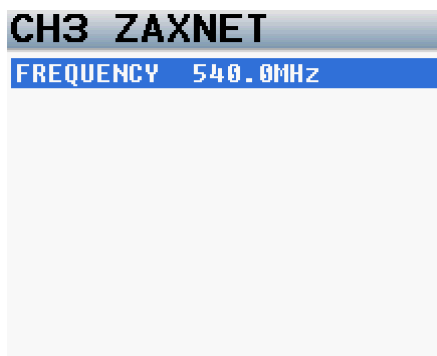


Figure 2-11 ZaxNet Channel page

Once this page is being displayed, press one of the multi-function keys to select a channel to review and modify.

Bus Routing page

Page purpose: This page manages the pages that indicate which input, if any, are routed to specific outputs.

How to get here:

- (**BUS** key)

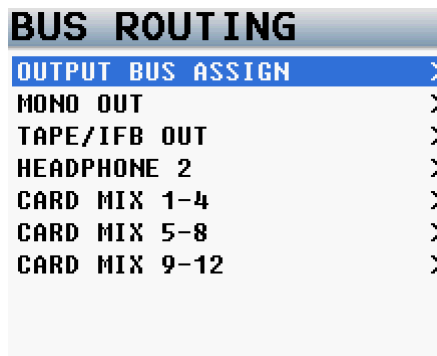


Figure 2-12 Bus Routing page

Output Bus Assign page

Page purpose: These pages control which analog inputs are routed to specific output bus(es).

How to get here:

- (**BUS** key → **Output Bus Assign** button)

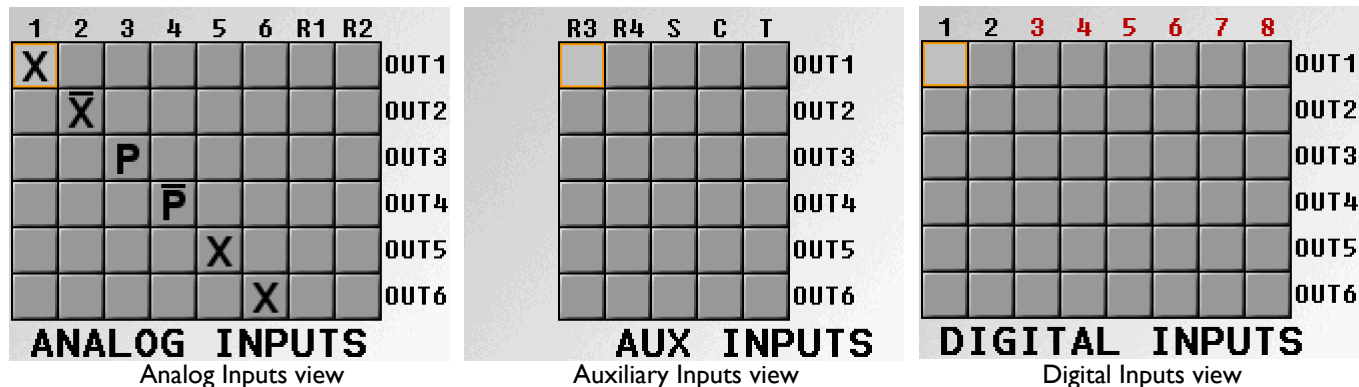


Figure 2-13 Output BusAssign pages

To move between the three views, press the **BUS** key.

Collectively, the top line of the three pages indicates the following sources:

- (1 – 6) – six mic/line-level inputs
- (R1 – R4) – four line/return
- (S) – slate mic (press the **SLT** key)
- (C) – comm mic (press the **COM** key)
- (T) – tone generator
- (1 – 8) – eight digital inputs

The output busses are in a vertical line on the right.

Rotate the **MENU** knob to scroll through the matrix. Stop in the matrix, at the intersection of the input channel and output channel, where you want to send that specific input. Press the **MENU** knob to cycle through the available crosspoints, which are:

- Blank – no connection
- **X** – post-fader
- **P** – pre-fader
- **X** w/ line on top – post-fader, phase inverted
- **P** w/ line on top – pre-fader, phase inverted

NOTE: To add the optional phase invert items to the list, press the **STAR** key.

This is a global action. Once enabled in one page, all pages that can include inversion will also have it enabled.

This will reset to NO INVERSION mode when the unit is power-cycled.

Bus routing is fully cross faded so the selection may be changed while in Record mode.

Some crosspoint selections are colored red. RED items in any matrix page indicates an input is not available (mostly due to the way the input configure page is setup).

Mono Out page

Page purpose: This page controls which audio busses are routed to the Mono out connector.

How to get here:

- (BUS key → **Mono Out** button)

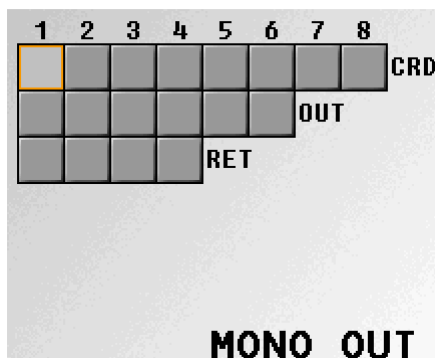


Figure 2-14 Mono Out page

Tape/IFB Out page

Page purpose: This page controls which audio busses are routed to the Tape out connector. In addition, this bus also sends audio to the IFB feed in the ZaxNet transmitter.

How to get here:

- (BUS key → **Tape Out** button)

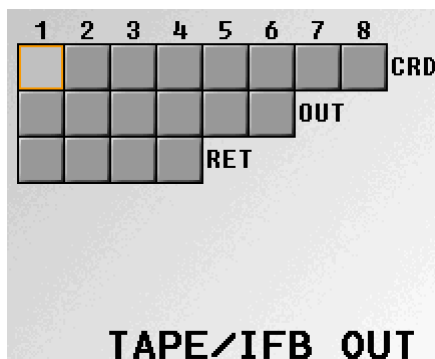


Figure 2-15 Tape Out page

Headphone-2 page

Page purpose: This page controls which audio busses are routed to the Headphone-2 (i.e., Boom Operator) connector.

How to get here:

- (BUS key → **Headphone 2** button)

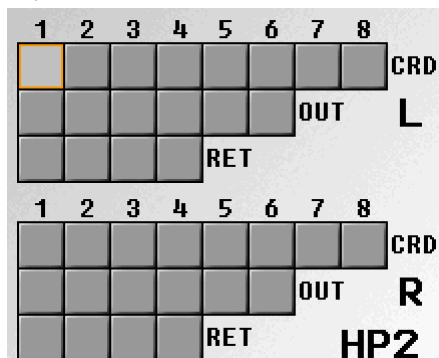


Figure 2-16 Headphone-2 page

This page provides control of the source(s) sent to the second headphone output connector, to include the separation of channels between left, right or both headphone cups. It can also be used as a separate unbalanced

output bus. Output volume control for this connector is **HEADPHONE #2 VOL** button located in the [ENG Setup page](#) {p.47}.

Card Mix 1-4 page

Page purpose: These pages control which inputs are sent to recording tracks 1 - 4.

How to get here:

- (BUS key → Card Mix 1-4 button)

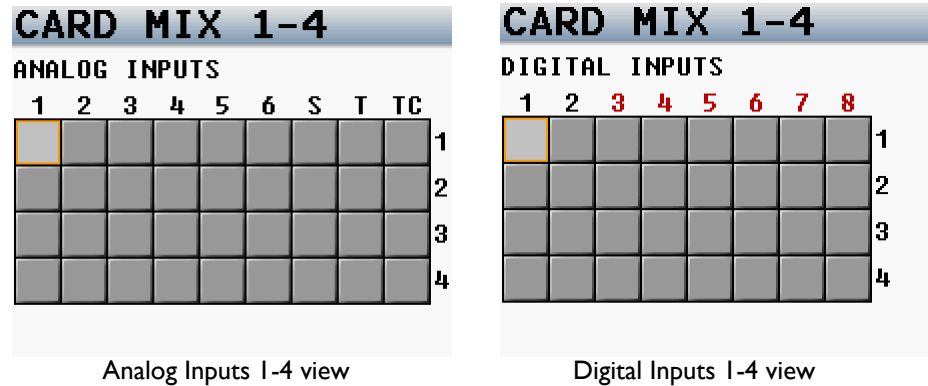


Figure 2-17 Card Mix 1-4 page

To move between the views, press the **BUS** key.

Collectively, the top line of the three sets of pages indicates the following sources:

- (1 - 6) – six mic/line-level inputs
- (S) – slate mic
- (T) – tone generator
- (TC) – timecode
- (1 - 8) – eight digital inputs

The vertical line of numbers on the right shows the recording tracks.

Rotate the **MENU** knob to scroll through the matrix. Stop in the matrix, at the intersection of the input channel and the recording channel, where you want to record that specific input. Press the **MENU** knob to cycle through the available crosspoints, which are:

- Blank – no connection
- **X** – post-fader
- **P** – pre-fader
- **X** w/ line on top – post-fader, phase inverted
- **P** w/ line on top – pre-fader, phase inverted

NOTE: To add the optional phase invert items to the list, press the **STAR** key.

Card Mix 5-8 page

Page purpose: These pages control which inputs are sent to recording tracks 5 - 8.

How to get here:

- (BUS key → **Card Mix 5-8** button)

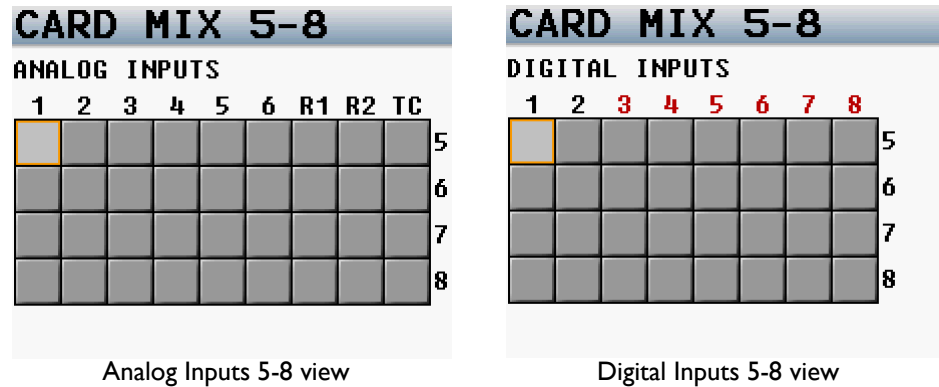


Figure 2-18 Card Mix 5-8 page

This page is not available in Nomad-4.

To move between the views, press the **BUS** key.

Collectively, the top line of the page views indicates the following sources:

- (1 - 6) – six mic/line-level inputs
- (R1 - R2) – line/camera returns
- (TC) – timecode
- (1 - 8) – eight digital inputs

The vertical line of numbers on the right shows the recording tracks.

Rotate the **MENU** knob to scroll through the matrix. Stop in the matrix, at the intersection of the input channel and the recording channel, where you want to record that specific input. Press the **MENU** knob to cycle through the available crosspoints, which are:

- Blank – no connection
- **X** – post-fader
- **P** – pre-fader
- **X** w/ line on top – post-fader, phase inverted
- **P** w/ line on top – pre-fader, phase inverted

NOTE: To add the optional phase invert items to the list, press the **STAR** key.

Card Mix 9-12 page

Page purpose: These pages control which inputs are sent to recording tracks 9 – 12.

How to get here:

- (BUS key → Card Mix 9-12 button)

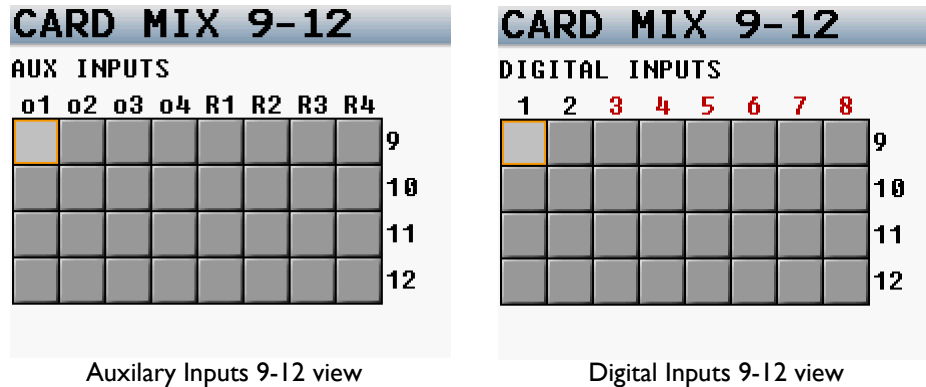


Figure 2-19 Card Mix 9-12 page

This page is available in Nomad-12 only.

To move between the views, press the **BUS** key.

Collectively, the top line of the page views indicates the following sources:

- (o1 – o4) – four outputs
 - (R1 – R4) – four line/camera returns
 - (1 – 8) – eight digital inputs
- (CURRENTLY NOT AVAILABLE)**

The vertical line of numbers on the right shows the recording tracks.

Rotate the **MENU** knob to scroll through the matrix. Stop in the matrix, at the intersection of the input channel and the recording channel, where you want to record that specific input. Press the **MENU** knob to cycle through the available crosspoints, which are:

- Blank – no connection
- **X** – post-fader
- **X** w/ line on top – post-fader, phase inverted
- **P** – pre-fader
- **P** w/ line on top – pre-fader, phase inverted

NOTE: To add the optional phase invert items to the list, press the **STAR** key.

Analog Input Channel Setup page

Page purpose: This page controls the operating parameters for each of the analog inputs.

How to get here:

- (**SETUP** key once)

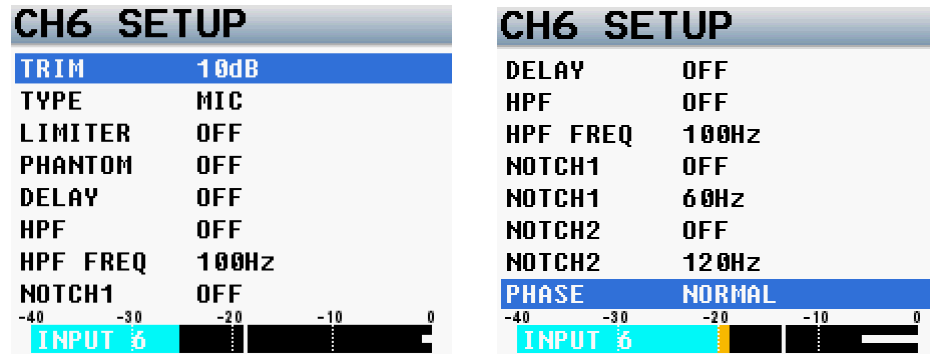


Figure 2-20 Analog Input Channel Setup page

While in this page, pressing any of the multi-function keys will select the input channels one through ten. An input meter is provided to help adjust the trim.

Press and rotate the **MENU** knob to select and change each channel input function. Channel input functions include: input trim, input type, channel delay, highpass filter, phase, compressor limiter, phantom power enable and two notch filters. Use the **HEADPHONE** knob to return to the [Home page](#) {p.23}. Each notch filter has separate On/Off and frequency adjustments. The notch frequency can be entered by using the number keys, as well as the **MENU** knob.

NOTE: The **HPF** button does double duty. Turning it **ON** turns on an analog filter with a fixed cutoff frequency of 100 Hz and a digital filter with the cutoff frequency controlled by the **HPF FREQ** button.

Headphone-I page

Page purpose: This page controls which audio busses are routed to the Headphone-I connector.

How to get here:

- (simultaneously press **MENU** knob and **HEADPHONE** knob)

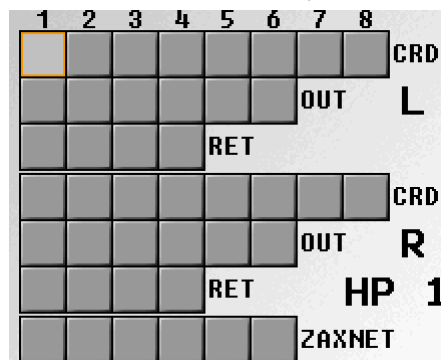


Figure 2-21 Headphone-I Monitor Sources page

Nomad's main monitor connection can retain up to 12 Monitor Presets, each consisting of any combination of card tracks, output busses or returns. If selected, wireless microphone receivers can be monitored directly through the ZaxNet System on Nomad 6, 8 and 12.

NOTE: The ZaxNet monitor points feed the headphones as split mono. Only one can be enabled at a time.

To create those User Presets, see [Retaining Your Headphone Mix with a Monitor Preset](#) {p.63}.

From the [Home page](#) {p.23}, you can cycle through the Monitor Presets using the **HEADPHONE** knob:

- press it to move to the NEXT preset
- press and hold it to move to the PREVIOUS preset

Main Menu page

Page purpose: This page directs the user to the appropriate subordinate page.

How to get here:

- (**MENU** knob once)

MAIN MENU		MAIN MENU	
META DATA	>	PLAYBACK CONTROL	>
PLAYBACK CONTROL	>	RECORD ENABLES	>
RECORD ENABLES	>	MY NOMAD (CARD/MIRROR)	>
MY NOMAD (CARD/MIRROR)	>	FADER ASSIGN	>
FADER ASSIGN	>	MEMORY STORE/RECALL	>
MEMORY STORE/RECALL	>	ABOUT NOMAD	>
ABOUT NOMAD	>	MODE	>
MODE	>	ENG SETUP	>
ENG SETUP	>	ZAXNET SETUP	>

Figure 2-22 Main Menu page

NOTE: from some meter screens, you may have to press and hold the **MENU** knob for 1 second to enter this page.

Metadata page

Page purpose: This page manages the Scene, Take and Note data for existing and new Takes.

How to get here:

- (**MENU** knob once → **Meta Data** button)

META DATA		
SR:48000	TC:23.98	PRE:OFF
Mirroring is OFF		
MIR 1 OF 20		
TL 01:02:03		
FOLDER 2001 (5 segs)		
EDIT SEGMENT: 1		
S:S1	T:1	
N:NOMAD NOTE		

Figure 2-23 Metadata page

This page displays metadata about the next recording, as well as allowing entry of the Scene ID, Take and a short Note about the Take.

NOTE: for the most part, you will use this screen to maintain the Scene and Take for the next take. The text **(NEXT seg)** will be displayed after **FOLDER (name)** to indicate the segment does not yet exist. Then, at the end of the Take, you can enter a Note to indicate the condition of the Take.

NOTE: Upon completing a Take, Nomad automatically increments the Take # in preparation for the next Take.

Select one of the data fields and press the **MENU** knob to open the [Enter Text page](#) {p.56}. Go to the **Enter Text page** for additional information.

NOTE: if you make a change to the Scene ID field, the Take # is reset to 1.

Playback Control page

Page purpose: This page controls which Take will be played back and where in the Take playback will begin.

How to get here:

- (MENU knob once → **Playback Control** button)
- (PLAY key)

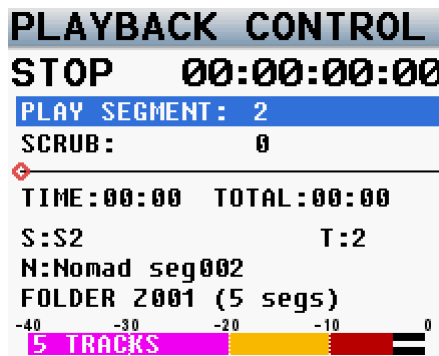


Figure 2-24 Playback Control page

Record Enables page

Page purpose: This page controls which of the recorder's tracks are enabled.

How to get here:

- (MENU knob once → **Record Enables** button)

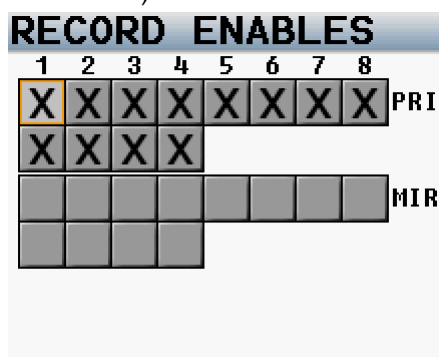


Figure 2-25 Record Enables page

This page enables which tracks will be recorded on each media. In the example above, 12 tracks are being recorded to the primary media.

NOTE: while the sample-rate is set to 88.2 kHz or 96 kHz, only 8 primary tracks can be selected and recorded.

NOTE: while in Record mode, the record enable buttons cannot be changed.

NOTE: it is not necessary to remove record enable crosspoints from the Mirror card. If the Primary card is not recording a track, it will NOT be written to the Mirror card.

My Nomad page

Page purpose: This page controls where the audio is recorded and when it is mirrored.

How to get here:

- (MENU knob once → **My Nomad** button)

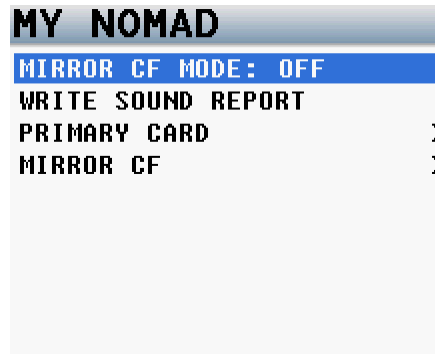


Figure 2-26 My Nomad page

This page controls the recording functionality of the Nomad. Each of the recording media can be accessed and controlled.

IMPORTANT: when Nomad is setup to allow mirroring mode to be remembered (automatically turned on) after a power cycle, if a CF card is not installed in the Mirror slot after the unit boots-up, mirror mode will be turned off and must be manually turned on by the user when a valid Mirror Card is inserted.

Primary CF page

Page purpose: This page manages the primary recording media.

How to get here:

- (MENU knob once → **My Nomad** button → **Primary Card** button)

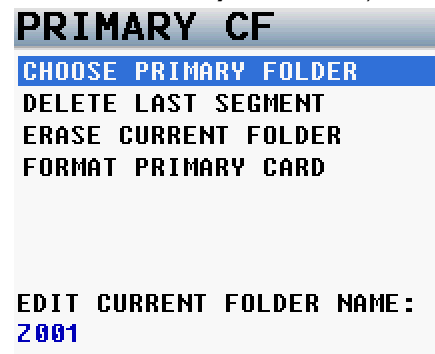


Figure 2-27 Primary CF page

This page allows for the control of the primary CompactFlash card.

Delete last segment erases the last recorded segment. This function is not recommended as erasing files can create differences between mirrored media and the primary card. Erase current folder clears only the current folder leaving the other folders untouched. Format CF card will completely erase the contents of the card. Nomad will ask if you are sure as this function erases primary card contents that cannot be recovered.

IMPORTANT: the card format is Zaxcom MARF. This format is not FAT32 compatible and if you want to use it with a Mac or PC platform it must be read with ZaxConvert.

IMPORTANT: the primary and mirror cards must be formatted by Nomad before use.

NOTE: currently, 32gig cards are the largest recommend for use. Check with Zaxcom for a current update on this restriction.

Primary Folder page

Page purpose: This page manages which folder is used for recording the audio.

How to get here:

- (MENU knob once → My Nomad button → Primary Card button → Choose Primary Folder button)

PRIMARY FOLDER		
FOLDER	SIZE	SEGS
Z001	221 GB	5 ✓
Z002	17 GB	3
Z003	0 MB	0
Z004	0 MB	0
Z005	0 MB	0
Z006	0 MB	0
Z007	0 MB	0
Z008	0 MB	0

Figure 2-28 Primary Folder page

The primary media uses the Zaxcom MARF file system. The advantage: any power loss while recording will not result in the loss of any recorded audio, as is common with all other portable recording systems.

At power-up, Nomad automatically closes any open files (at the point the audio recording was interrupted) with no loss of audio up to that point. Even though it uses a proprietary file system, it is 100% compatible with Mac or PC by using the free file conversion utility ZaxConvert. This utility may be downloaded from www.zaxcom.com.

All recorded files are directed to individual folders. The **Primary Folder page** allows the Operator to choose the current recording folder and which folder can be erased.

The primary and mirror folders can be different or the same. If they are the same, the mirror audio will be the same as the audio currently being recorded on the primary media.

IMPORTANT: the primary and mirror cards must be formatted by Nomad before use.

IMPORTANT: currently, 32gig cards are the largest recommended for use. Check with Zaxcom for a current update on this restriction.

Delete Last Primary Segment page

Page purpose: This page allows the Operator to delete the last Take recorded.

How to get here:

- (MENU knob once → My Nomad button → Primary Card button → Delete Last Segment button)

DELETE LAST SEG

Press * to Delete
Segment 055
in Folder Z009

Press BACK to Exit

Last Segment in
Folder Z009 is 055

Figure 2-29 Delete Last Primary Segment page

Erase Current Primary Folder page

Page purpose: This page allows the Operator to delete an entire folder on the recording media.

How to get here:

- (MENU knob once → My Nomad button → Primary Card button → Erase Current Folder button)

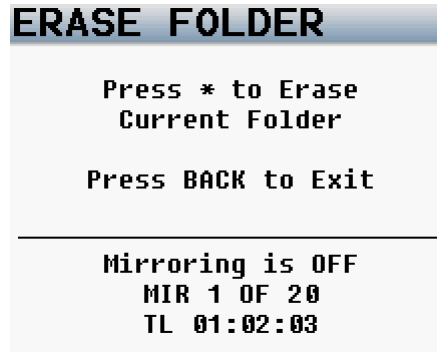


Figure 2-30 Erase Current Primary Folder page

WARNING: If you have mirrored a folder and need to erase it to make room for more recording files on the primary card, **REMOVE** the MIRROR card before doing the erase. If you don't, the folder will be **ERASED FROM BOTH CARDS!**

Erase Primary Card page

Page purpose: This page allows the Operator to format the primary recording media.

How to get here:

- (MENU knob once → My Nomad button → Primary Card button → Format Primary Card button)

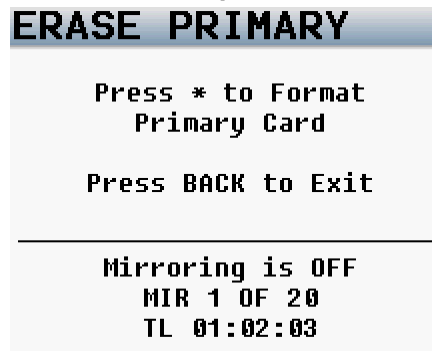


Figure 2-31 Erase Primary Card page

Mirror CF page

Page purpose: This page manages the mirror process.

How to get here:

- (MENU knob once → My Nomad button → Mirror CF button)

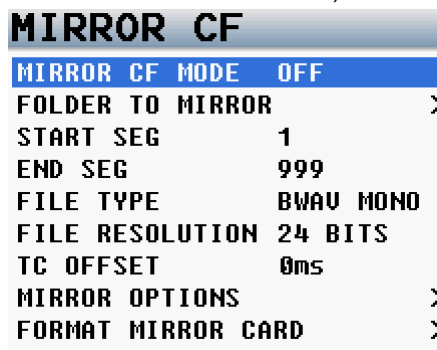


Figure 2-32 Mirror CF page

This page controls the copying of the primary CF card to the mirror CF card. The mirror process copies from the selected start segment to the selected end segment. The start segment will automatically increment with each new recording of the primary media. The file type and the file resolution are set in the page. The file type and resolution are usually determined by Post. The most common format: broadcast wave poly 24-bits.

The mirror CF card is formatted as FAT32, is fully compatible with all Mac and PC platforms and is generally used as a deliverable format to Post.

IMPORTANT: the primary and mirror cards must be formatted by Nomad before use.

IMPORTANT: currently, 32gig cards are the largest recommended for use. Check with Zaxcom for a current update on this restriction.

MIRROR CF MODE has two operational modes:

- **ON:** the mirror process will only start once the unit has gone into Stop mode. This is useful when a high track count is mirrored and recorded files are of short duration.
- **CONTINUOUS:** while the unit has gone into Record mode, audio is copied to the mirror card immediately after it is written to the primary card. Depending on the track count the mirror card may lag behind a bit. Not to worry, after you go into Stop mode, the primary card from recording, the mirror card will catch up.

IMPORTANT: while mirroring, you must set the mirror folder to the folder you want to mirror. This is not necessarily the same as the primary folder. If the primary folder and the mirror folder are not the same, the wrong audio data may be written to the Mirror card.

Folder to Mirror page

Page purpose: This page specifies which folder on the primary media is to be mirrored (copied).

How to get here:

- (MENU knob once → My Nomad button → Mirror CF button → Folder to Mirror button)

FOLDER TO MIRROR		
FOLDER	SIZE	SEGS
Z001	221 GB	5
Z002	17 GB	3
Z003	0 MB	0
Z004	0 MB	0
Z005	0 MB	0
Z006	0 MB	0
Z007	0 MB	0
Z008	0 MB	0

Figure 2-33 Folder to Mirror page

Mirror Options page

Page purpose: This page manages options related to the mirror process.

How to get here:

- (MENU knob once → My Nomad button → Mirror CF button → Mirror Options button)

MIRROR OPTIONS	
REMEMBER MIRROR SETTINGS	
AFTER POWER CYCLE: OFF	

Figure 2-34 Mirror Options page

REMEMBER MIRROR SETTINGS AFTER POWER CYCLE button – this setting allows Nomad to STAY in mirror mode even after it has been powered off. If this option is set to **OFF**, any time you power down Nomad it changes the **MIRROR CF MODE** button on the [My Nomad page](#) {p.38} to **OFF**.

Erase Mirror Card page

Page purpose: This page allow the Operator to format the currently installed mirror media.

How to get here:

- (MENU knob once → My Nomad button → Mirror CF button → Format Mirror Card button)

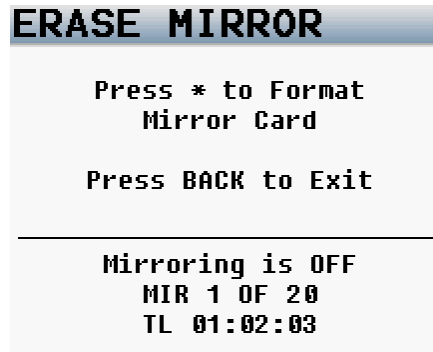


Figure 2-35 Erase Mirror Card page

Fader Assign page

Page purpose: This page controls which fader(s) are assigned to which input(s).

How to get here:

- (MENU knob once → Fader Assign button)

FADER ASSIGN								
1	2	3	4	5	6	7	8	
A								FAD1
	A							FAD2
		A						FAD3
			A					FAD4
				A				FAD5
					T			FAD6

Figure 2-36 Fader Assign page

In the example above, fader 1-5 are set to control the fader functions of the channels 1-5. Fader 6 is set to control the input trim of channel 6.

The 6 hardware faders are routed with the fader routing matrix. Analog inputs 1-6, digital inputs 1-8 and analog trim controls can be routed to the faders. Because the Nomad has a digital mixer, no actual audio is going through the Nomad fader controls allowing for complete flexibility for the mixing hardware faders. Return inputs 7-10 may be used as line level inputs and are mixed with the virtual faders in the 6-Channel Mix Home page (see [Alternate Home page Configurations](#) {p.25}) and cannot be assigned to a hardware fader.

IMPORTANT: do not assign more than one fader to each channel.

NOTE: while using a multiple-element mic (i.e, stereo, surround, etc.) assign all of the channels to one master fader and adjust each channel with the input channel trimmers. While doing this, you need to disable the Auto-trim function (see [Mode page](#) {p.46}) as it is unreliable.

Memory page

Page purpose: This page manages the store and recall of several configurations of all of the unit's parameters.

How to get here:

- (MENU knob once → **Memory Store/Recall** button)

MEMORY		MEMORY	
STORE 1	>	STORE 2	>
STORE 2	>	STORE 3	>
STORE 3	>	CLEAR FADERS	>
CLEAR FADERS	>	RECALL 1	>
RECALL 1	>	RECALL 2	>
RECALL 2	>	RECALL 3	>
RECALL 3	>	RECALL FACTORY DEFAULTS	>
RECALL FACTORY DEFAULTS	>	STORE TO MIRROR CF	>
STORE TO MIRROR CF	>	RECALL FROM MIRROR CF	>

Figure 2-37 Memory page

This is used to save and recall user settings. Three user modifiable memories are provided. A separate memory is provided to restore to factory default settings. If factory defaults are recalled you will need to reapply your user settings. Nomad allows you to save settings to (and restore settings from) the mirror CompactFlash card. This allows for settings to be exchanged between multiple Nomads. The internal settings are stored in flash memory contained within Nomad. External media is never necessary to maintain internal memories.

Store Memory page

Page purpose: This page stores the current parameter settings in a specified memory.

How to get here:

- (MENU knob once → **Memory Store/Recall** button → **Store 1** button)



Figure 2-38 Store Memory page

NOTE: With the exception of "Preset #1", the other two presets look the same.

Clear Faders page

Page purpose: This page clears all of the current fader settings.

How to get here:

- (MENU knob once → Memory Store/Recall button → Clear Faders button)

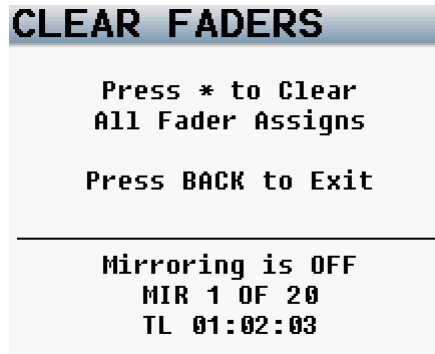


Figure 2-39 Clear Fader Assign page

Recall Memory page

Page purpose: This page recalls all of the parameter settings from the specified memory.

How to get here:

- (MENU knob once → Memory Store/Recall button → Recall 1 button)

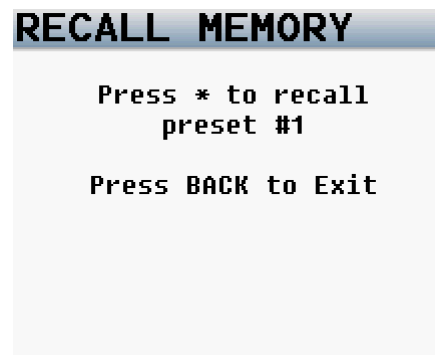


Figure 2-40 Recall Memory page

NOTE: With the exception of “Preset #1”, the other two presets look the same.

IMPORTANT: Once the unit has recalled (loaded) the settings, restart Nomad.

Factory Reset page

Page purpose: This page sets all of the parameter settings to known good and compatible values.

How to get here:

- (MENU knob once → Memory Store/Recall button → Recall Factory Defaults button)



Figure 2-41 Factory Reset page

Store to Mirror CF page

Page purpose: This page stores all of the current parameter settings to a file on the current mirror media.

How to get here:

- (MENU knob once → Memory Store/Recall button → Store to Mirror CF button)



Figure 2-42 Store to Mirror CF page

Recall from Mirror CF page

Page purpose: This page recalls all of the parameter settings from the file on the current mirror media.

How to get here:

- (MENU knob once → Memory Store/Recall button → Recall from Mirror CF button)

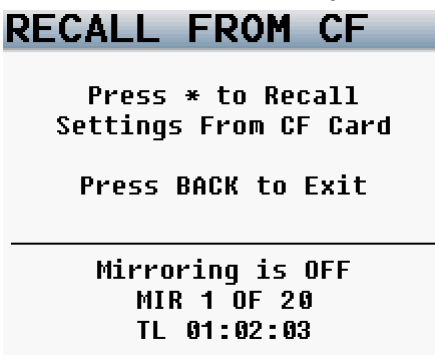


Figure 2-43 Recall from Mirror CF page

About Nomad page

Page purpose: This page displays important information about the installed software.

How to get here:

- (MENU knob once → About Nomad button)

ABOUT NOMAD	
MODEL	NOMAD SIM
SERIAL NUMBER	1234
SOFTWARE VER	v2.xx
DSP REVISION	8
AUDIO REVISION	12
MAIN REVISION	55
ZAXNET VERSION	v0.99
CPU USAGE	57%

Figure 2-44 About Nomad page

Mode page

Page purpose: This page contains settings that change the global behavior of the Nomad.

How to get here:

- (**MENU** knob once → **Mode** button)

MODE		MODE	
SAMPLE RATE >		GPI REMOTE ROLL	OFF
TC TRANSPORT	NORMAL	SLATE SOURCE	INTERNAL
GPI REMOTE ROLL	OFF	PRERECORD	OFF
SLATE SOURCE	INTERNAL	AUTO TRIM	OFF
PRERECORD	OFF	INPUT CONFIGURE >	
AUTO TRIM	OFF	TRANSPORT KEYS	SHIFTED
INPUT CONFIGURE >		MIX8	OFF
TRANSPORT KEYS	SHIFTED	PAN COPY 3/4	OFF
MIX8	OFF	PAN COPY 5/6	OFF

Figure 2-45 Mode page

This page maintains some of Nomad's operating parameters. Pan routing enables and selects which pair of outputs will be assigned to the two channel ENG pan routing feature. This mode would most likely be used when sending two channels of audio to be recorded directly to camera. When selected, each pan pair will act as a left/right output pair. Example: if PAN 3/4 is enabled, output bus 3 will be the left out and output bus 4 will be the right out.

Sample-rate page

Page purpose: This page sets the sampling-rate used to record audio.

How to get here:

- (**MENU** knob once → **Mode** button → **Sample Rate** button)

SAMPLE RATE	
Sample rates higher than 48048 are limited to 8 tracks or less	
SAMPLE RATE 48000	
1 2 3 4 5 6 7 8	
X X X X X X X X	PRI
X X X X	

Figure 2-46 Sample Rate page

Available sample-rates: 44100, 47952, 48000, 48048, 88200, 96000

Input Configure page

Page purpose: This page configures which inputs are available.

How to get here:

- (**MENU** knob once → **Mode** button → **Input Configure** button)

INPUT CONFIGURE	
AES 1/2	ON
AES 3/4	OFF
AES 5/6	OFF
AES 7/8	OFF
RET 3/4	ON
ANALOG 5/6	ON
IFB INPUT	OFF
INPUT TYPE	0

Figure 2-47 Input Configuration page

The factory default is set up so that Nomad can handle one pair of AES inputs. If more than one pair of AES inputs is required, then the Input configuration must be changed in order to make the AES additional resources available. This page is used to select between AES inputs and other Nomad resources. Put simply, for Nomad's processors to handle the additional AES channels, other sources may need to be deactivated. Eight selections are provided to give you various options of AES inputs, tape return 3/4 and analog input 5/6. You can choose which option works best for you. A factory reset has no effect on this page.

ENG Setup page

Page purpose: This page setups Nomad's engineering parameters.

How to get here:

- (**MENU** knob once → **ENG Setup** button)

ENG SETUP	ENG SETUP	ENG SETUP
HEADPHONE #2 VOL 0dB	WARNINGS SETUP >	INPUT LEVELS >
SET TIME DATE >	INPUT LEVELS >	OUTPUT LEVELS >
LIMITER ENABLE >	OUTPUT LEVELS >	LCD BRIGHTNESS 0
INPUT LIMITER >	LCD BRIGHTNESS 0	LED BRIGHTNESS 0
OUTPUT LIMITER >	LED BRIGHTNESS 0	TRANSPORT KEYS SHIFTED
CARD LIMITER >	TRANSPORT KEYS SHIFTED	TONE FREQ 0 Hz
TRACK NAMES >	TONE FREQ 0 Hz	TONE LEVEL 0dB
MONITOR NAMES >	TONE LEVEL 0dB	AES-42 POWER OFF
WARNINGS SETUP >	AES-42 POWER OFF	ADVANCED SETUP >

Figure 2-48 ENG Setup page

This page is designed to configure the device for your specific application. This page sets the input and output levels as well as other ENG parameters.

Transport Keys parameter

The two possibilities are:

SHIFTED: pressing the **TC** key, **A-MIX** key or **ZNET** key immediately displays the page associated with those keys. To go into Record mode, Playback mode or Stop mode, it is necessary to press the **MENU knob / SHIFT** key while pressing the **REC** key, **PLAY** key or **STOP** key to change the Transport mode.

NOTE: it is still possible to directly access the transport functions by pressing the appropriate key for 1 second.

UNSHIFTED: pressing the **REC** key, **PLAY** key or **STOP** key immediately puts the unit into Record mode, Playback mode or Stop mode, as appropriate. To display the pages associated with the [Timecode Slate page](#) {p.26}, [Auto-mix page](#) and [ZaxNet Channel page](#) {p.29}, it is necessary to press the **MENU knob / SHIFT** key while pressing the **TC** key, **A-MIX** key and **ZNET** key.

NOTE: Auto-mix is a work in progress and is not currently available.

Set Date & Time page

Page purpose: This page set the date and time for the unit's clock/calander.

How to get here:

- (MENU knob once → ENG Setup button → Set Time Date button)

SET TIME DATE

Year	2011
Month	5
Day	9
Hours	10
Minutes	20
Seconds	0

Time is in 24 hour format

Figure 2-49 Set Date & Time page

Nomad contains a battery backed real-time clock and calendar. This page is used to jam the timecode and user-bits. The clock keeps the timecode running when the power is turned off.

Limiter Enable page

Page purpose: This page manages which tracks and outputs are using the common limiter settings.

How to get here:

- (MENU knob once → ENG Setup button → Limiter Enable button)

LIMITER ENABLE

1	2	3	4	5	6	7	8	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CRD
				9-12				

1	2	3	4	5	6	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUTS

Figure 2-50 Limiter Enable page

In this page you can choose which card track and which output bus you want to engage the limiters on. Select the **X** crosspoint in the matrix to enable the limiter. The limiter is implemented as a soft knee compressor. The Card limiter settings are adjusted in the [Card Limiter Parameters page](#) {p.49} and the Output Bus limiter settings are adjusted in the [Output Limiter Parameters page](#) {p.49}.

Input Limiter Parameters page

Page purpose: This page manages the common input limiter settings.

How to get here:

- (MENU knob once → ENG Setup button → Input Limiter button)

INPUT LIMITER	
ATTACK	5mS
DECAY	100mS
THRESH	-6dB
RATIO	4.0:1

Figure 2-51 Input Limiter Parameters page

Output Limiter Parameters page

Page purpose: This page manages the common output limiter settings.

How to get here:

- (MENU knob once → ENG Setup button → Output Limiter button)

OUTPUT LIMITER	
ATTACK	5mS
DECAY	100mS
THRESH	-6dB
RATIO	4.0:1
GAIN	0dB

Figure 2-52 Output Limiter Parameter page

This page maintains the Limiter/Compressor parameters for the output busses. The settings are effective on a global basis, meaning the settings established here are used for all of the output bus channels. The output limiter only affects the selected 6 main output busses. While this page set the parameters for the Output limiter, to enable/disable using this limiter, go to the [Limiter Enable page](#) {p.48}.

Card Limiter Parameters page

Page purpose: This page manages the common track limiter settings.

How to get here:

- (MENU knob once → ENG Setup button → Card Limiter button)

CARD LIMITER	
ATTACK	5mS
DECAY	100mS
THRESH	-6dB
RATIO	4.0:1
GAIN	0dB

Figure 2-53 Card Limiter Parameter page

This page maintains the Limiter/Compressor parameters for the card tracks. The settings are effective on a global basis, meaning the settings established here are used for all of the card tracks. The Card limiter only affects the selected tracks that are recorded on the CF card media. While this page set the parameters for the limiter, whether or not this limiter is used is controlled by the [Limiter Enable page](#) {p.48}.

Track Names page

Page purpose: This page manages the name applied to each recorder track.

How to get here:

- (MENU knob once → ENG Setup button → Track Names button)

TRACK NAMES		TRACK NAMES	
1:	CARD 1	4:	CARD 4
2:	CARD 2	5:	CARD 5
3:	CARD 3	6:	CARD 6
4:	CARD 4	7:	CARD 7
5:	CARD 5	8:	CARD 8
6:	CARD 6	9:	CARD 9
7:	CARD 7	10:	CARD 10
8:	CARD 8	11:	CARD 11
9:	CARD 9	12:	CARD 12

Figure 2-54 Track Names page

This page allows for the naming of recorded tracks. The track names are displayed within the card meters and are contained in the file metadata so Post can easily identify the source of a recorded track. Once you click on a particular name, the [Enter Text page](#) {p.56} is displayed.

Monitor Names page

Page purpose: This page manages the name for each headphone configuration.

How to get here:

- (MENU knob once → ENG Setup button → Monitor Names button)

MON MEM NAMES		MON MEM NAMES	
1:	HP 1	4:	HP 4
2:	HP 2	5:	HP 5
3:	HP 3	6:	HP 6
4:	HP 4	7:	HP 7
5:	HP 5	8:	HP 8
6:	HP 6	9:	HP 9
7:	HP 7	10:	HP 10
8:	HP 8	11:	HP 11
9:	HP 9	12:	HP 12

Figure 2-55 Monitor Names page

This page allows you to customize the headphone monitor names that appear in the home screens so that you can identify the headphone memory. Once you click on a particular name, the [Enter Text page](#) {p.56} is displayed.

Warnings Setup page

Page purpose: This page manages the audible alerts sent to Headphone-I.

How to get here:

- (MENU knob once → **ENG Setup** button → **Warnings Setup** button)

WARNINGS SETUP			
INT BATT WARNING	OFF		
INT BATT THRESHOLD	5.5V		
EXT BATT WARNING	OFF		
EXT BATT THRESHOLD	10.5V		
HP BEEP LOUDNESS	20		
HP BEEP BATTERY	OFF		
HP BEEP LOW DISK	OFF		
HP BEEP REC/STOP	OFF		

Figure 2-56 Warnings Setup page

Input Levels page

Page purpose: This page manages the audio levels for the specified inputs.

How to get here:

- (MENU knob once → **ENG Setup** button → **Input Levels** button)

INPUT LEVELS			
INT SLATE LEVEL	0dB		
EXT SLATE LEVEL	0dB		
RET1 LEVEL	0dBu		
RET2 LEVEL	0dBu		
RET3 LEVEL	0dBu		
RET4 LEVEL	0dBu		

Figure 2-57 Input Levels page

Return I-4 Input Adjust

These inputs are continuously adjustable in 1 dB steps from +4dBu to -15 dBu to accept a line-level input. Since these inputs can also be used as line-level inputs the return level adjustment provides a calibration for the input level of the R1-R4 inputs. (These inputs are sometimes referred to as inputs 7-10 when used to feed busses)

Internal & External Slate Level Adjust

The internal slate microphone level and the external input connector level are independently and continuously adjustable.

NOTE: It is normal for the internal slate audio to have a high noise floor. This is due to the audio routing within the Nomad's digital wiring section.

Output Levels page

Page purpose: This page manages the audio levels for the specified outputs.

How to get here:

- (MENU knob once → ENG Setup button → Output Levels button)

OUTPUT LEVELS			OUTPUT LEVELS		
XLR	OUT1	0dBu	XLR	OUT4	0dBu
XLR	OUT2	0dBu	TA5	OUT1	0dBu
XLR	OUT3	0dBu	TA5	OUT2	0dBu
XLR	OUT4	0dBu	TA5	OUT3	0dBu
TA5	OUT1	0dBu	TA5	OUT4	0dBu
TA5	OUT2	0dBu	TA5	OUT5	0dBu
TA5	OUT3	0dBu	TA5	OUT6	0dBu
TA5	OUT4	0dBu	MONO	OUT	0dBu
TA5	OUT5	0dBu	TAPE	OUT	0dBu

Figure 2-58 Output Levels page

TA-5 & XLR-3 Output Bus Levels

Each of the 6 main output busses can be independently selected to one of the following output levels: 0dBu (line level), -10dBu (tape / consumer level), -35dBu (mic level). For example, output bus 1 can feed the XLR #1 out at 0dBu and the TA5 #1 at -35 at the same time.

Mono & Tape Output Bus Levels

These outputs are continuously adjustable in 1 dB steps from -12dBu to +21dBu.

Advanced Setup page

Page purpose: This page is for changing aspects of the machine that most people will not need to do.

How to get here:

- (MENU knob once → ENG Setup button → Advanced Setup button)

ADVANCED SETUP	
PREVENT EMPTY PAN	OFF
DISPLAY SPEED	FAST
AES-42 HIGH VOLTAGE	OFF
BURN BOOT LOADER	>
DEBUG BITS	0

Figure 2-59 Advanced Setup page

PREVENT EMPTY PAN button – Set to **ON**, removes the blank option while in ENG mode, leaving only **L**, **C**, **R**.
DISPLAY SPEED button – Should always be set to **FAST**.

NOTE: Currently the display is updated every frame when possible. When display speed is set to **SLOW**, it does not try to update quite that fast. This is in case you load up the machine with tons of effects and crosspoints and/or run at 96 kHz and find that the user interface is getting hard to use. It is just a precautionary measure.

The display will also automatically slow down when mirroring or when the unit needs more horsepower for recording a lot of tracks.

Burn Bootloader page

Page purpose: This page is responsible for starting the unit up, executing the main program, and burning the main program when the user holds the STAR key on boot up.

How to get here:

- (**MENU** knob once → **ENG Setup** button → **Advanced Setup** button → **Burn Boot Loader** button)

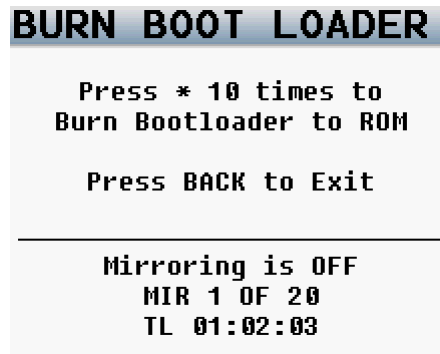


Figure 2-60 Burn Bootloader page

NOTE: The user should read the release notes whenever he installs a new version to see if he should install a new bootloader or new ZaxNet firmware.

ZaxNet Setup page

Page purpose: This page configures the wireless transceiver installed in Nomad.

How to get here:

- (**MENU** knob once → **ZaxNet Setup** button)

ZAXNET SETUP		ZAXNET SETUP	
IFB MODE	OFF	RX AUDIO GAIN	0 dB
INPUT CONFIGURE	>	GROUP CODE	0
TX CHANNEL	2404	IFB JAM MODE	OFF
RX CHANNELS	>	TX POWER	0
RX AUDIO GAIN	0 dB	TRANSPORT CMDS	OFF
GROUP CODE	0	POWER-ROLL MODE	ALWAYS LOW
IFB JAM MODE	OFF	IFB TEST TONE	OFF
TX POWER	0	BURN ZAXNET FIRMWARE	>
TRANSPORT CMDS	OFF	IFB DEBUG	>

Figure 2-61 ZaxNet Setup page

Page Notes

For this page to be useful, the following must be true for the associated wireless kit(s):

- Zaxcom unit(s)
- Transmitters must be TRX9xx units
- Receivers can be any unit but prefer QRX100
- Each TRX9xx must have a local recorder with recording media installed.

IFB Mode button

This button controls how the unit will operate on ZaxNet:

- **OFF** – the transceiver unit is not available for use
- **RX** – the transceiver is set to receive mode. The unit will function as any or IFB receiver.
- **TX** – the transceiver is set to transmit mode. The unit will be the master for units with its Group ID.

CAUTION: If you set the IFB Mode button to TX, be sure to attach an antenna. If you don't, RFI WILL get into the mic preamps.

TX Channel button

This button controls which frequency the unit will use to transmit/receive.

RX Audio Gain button

This button controls which Group ID number will be used for the equipment.

Group Code button

This button controls which Group ID number will be used for the equipment.

IFB Jam Mode button

- **OFF** – the unit can be jammed manually
- **AutoJam** – the unit will jam timecode as it is received.
- **AutoLoad** – the unit will jam timecode and forward transport commands.

TX Power button

While the unit is in transmit mode, this button controls the transmitter's signal strength. (7 = high power)

Transport Commands button

If this button is set to **SLAVED**, the associated wireless transmitter will start/stop recording each time Nomad starts/stops recording.

Power-roll Mode button

For those wireless kits with the ability to change their Transmitter power by remote-control:

- **ALWAYS LOW** – the transmitter will always be run at the low power setting
- **DYNAMIC** – the transmitter will run at low power between Takes and run at high power during a Take.
- **ALWAYS HIGH** – the transmitter will always be run at the high power setting

IFB Test Tone button

Just like is "sounds", it turns on a test tone that is transmitted on the IFB audio channel, allowing the user to adjust their receiver's volume. Its settings are: -20 dBFS @ 500 Hz, to differentiate it from the Standard Tone.

NOTE: While the transceiver is set to **TX** (transmit) (see the IFB MODE parameter on the ZaxNet Setup page {p.53}) and the wireless kits are set up to use IFB audio, the test tone will be heard through the monitor jack.

While the transceiver is set to **RX** (receive) the test tone can be heard over the headphones, if one of the ZaxNet crosspoints is selected in the [Headphone-1 page](#){p.35}.

Input Configure-2 page

Page purpose: This page configures which inputs are available.

How to get here:

- (MENU knob once → ZaxNet Setup button → Input Configure button)

INPUT CONFIGURE	
AES 1/2	ON
AES 3/4	OFF
AES 5/6	OFF
AES 7/8	OFF
RET 3/4	ON
ANALOG 5/6	ON
IFB INPUT	OFF
INPUT TYPE	0

Figure 2-62 Input Configure page

IFB Receiver Channel Setup page

Page purpose: This page establishes the frequencies monitored in the [Headphone-1 page](#) {p.35}.

How to get here:

- (MENU knob once → ZaxNet Setup button → IFB Debug button)

RX CHANNEL SETUP		
RX	FREQ1	2404
RX	FREQ2	2404
RX	FREQ3	2404
RX	FREQ4	2404
RX	FREQ5	2404
RX	FREQ6	2404

Figure 2-63 IFB Receiver Channel Setup page

Burn ZaxNet Software page

Page purpose: This page installs the ZaxNet software.

How to get here:

- (MENU knob once → ZaxNet Setup button → Burn ZaxNet Firmware button)

BURN ZAXNET SW	
Press * to Program Zaxnet Processor	
Press BACK to Exit	
Mirroring is OFF	
MIR 1 OF 20	
TL 01:02:03	

Figure 2-64 Burn ZaxNet Software page

IFB Debug page

Page purpose: This page is used to support testing of the IFB.

How to get here:

- (MENU knob once → ZaxNet Setup button → IFB Debug button)

IFB DEBUG		
	STAT	WORK
ERRS:	00	00
GOOD:	00	00

Figure 2-65 IFB Debug page

False Start page

Page purpose: This page gives the Operator the ability to mark a Take as a False Start or just delete it.

How to get here:

- (while in Stop mode, press and hold **ZNET** key for 1 second)

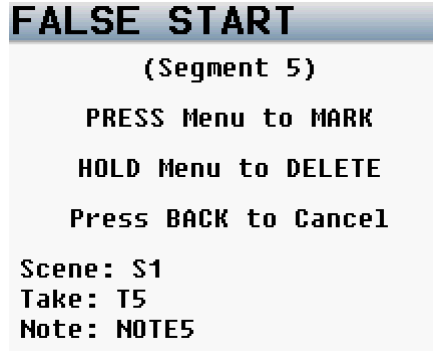


Figure 2-66 False Start page

Enter Text page

Page purpose: This page allows alphanumeric data entry for the appropriate data fields.

How to get here:

- (Clicking on any button that supports alphanumeric data entry)

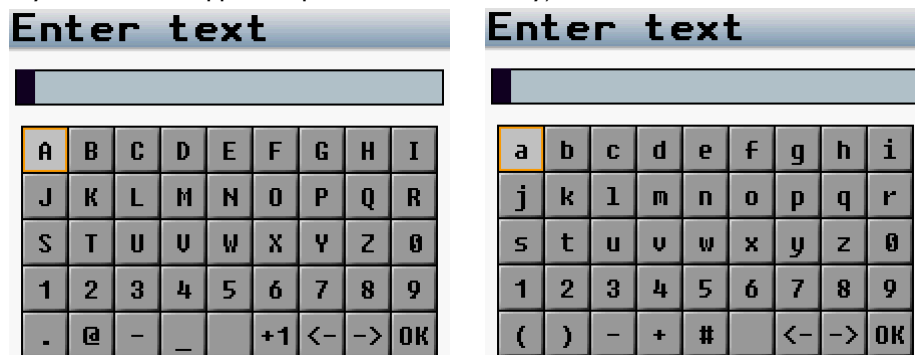


Figure 2-67 Enter Text page

To enter a character, turn the **MENU** knob until the character is highlighted and then press the **MENU** knob to select it.

After you have completed entering the data:

- to accept the data, press the **HEADPHONE** knob for 1 second, or click the **OK** button.
- to reject what you have entered, press the **HEADPHONE** knob.

This page is then closed and the data, if any, is copied back to the parameter's data field.

NOTE: Pressing the **MENU** knob for ~1 second toggles the page between uppercase and lowercase letters.

NOTE: Changing the case also changes the special characters available on the bottom row of buttons.

NOTE: If you are in the **SCENE** or **TAKE** button, in the [Metadata page {p.36}](#), press the **+I** button to increment the displayed value. This also works for letters, upper and lower case.

Chapter 3 – Setting Up the Power and Audio Connections

This section describes how to connect external mic- and line-level devices, and enter the proper settings to make these connections work.

NOTE: If you aren't sure how to get to the menu pages mentioned in the remainder of this user manual, refer back to the reference in chapter 2. There, you will find the sequence of key / button presses to get to it, in the section titled **How to get here:**.

The Nomad has factory default settings that allow the operator to power it up and immediately start recording. When you do, it takes < 14 seconds to initialize and start recording. Once the boot sequence has completed the [Home page](#) {p.23} is displayed. The **Home page**'s configuration can be changed to one of the [Alternate Home page Configurations](#) {p.25}.

Power

The Nomad can be connected to an A/C power supply, or to an internal or external battery.

Internal Power

The Nomad uses 6 AA NiMH or Lithium batteries.

WARNING: See the [Left Side Description](#) {p.16} for the Battery Compartment's location and power source warnings.

External Power

The Nomad can use external power, connected to the Hirose-4F connector, as long as it supplies the proper voltage.

Whenever the power input connector has an adequate power source connected, it is the source of power for the Nomad.

WARNING: See the [Left Side Description](#) {p.16} for the External Power connector's location and power source warnings.

NOTE: If you need to run on battery power for an extended period of time, and need to record during this time, connect an external battery to Nomad when the internal battery is low. When an external power source is used, the Nomad automatically switches to this power source. This enables you to continue recording while you swap out the internal battery.

NOTE: Alternatively, if you are down to your last batteries and you don't trust the external power source, install them and connect the external power source. If the external source should fail, the Nomad will automatically switch to internal power until the external source has returned.

Battery Life

It is best to test how long it normally takes for the batteries to discharge fully, and use this time as your guide along with the battery meter.

Battery Display

The [Home page](#) {p.23} displays the source of power and its voltage.

When the voltage of any internal or external power source drops below the user-defined level, the battery indicator changes to **Red**. When the power source voltage drops to low, the unit shuts down.

NOTE: Nomad can operate down to about 6.0 V, but it is not recommended to run at this voltage.

IMPORTANT: When the unit shuts itself 'OFF' due to power loss or insufficient power, the audio tracks are left in the "open" state. When it is turned back 'ON', it automatically scans for those files and closes them. This process can take several minutes to complete. Nothing can be done until this process has completed.

NOTE: (from Howy)
If the unit has no AA batteries installed, there are times when it thinks it is running on internal batteries, since the voltage is always floating. If AA batteries are always installed, the external battery meter will always be correct. If no internal batteries are being used, consider turning off the internal battery warning option.

Setting the Battery Thresholds

The internal and external power thresholds control when the Battery icon on the [Home page](#) {p.23} changes from **Green** to **Red**. It also changes the scaling of the meter.

They can be accessed on the [Warnings Setup page](#) {p.51}. You can get there by pressing this sequence: (**MENU** knob once → **ENG Setup** button → **Warnings Setup** button).

To change the alert threshold for the internal power source (batteries), perform the following:

1. Click on the **INT BATT THRESHOLD** button.
2. (the parameter is opened for modification)
3. Rotate the **MENU** knob to change to the desired value.
4. Press the **MENU** knob to accept the value and close the field for modification.

To enable /disable the alert to your headphone change the setting for **INT BATT WARNING** button.

To change the alert threshold for the external power source, perform the following:

1. Click on the **EXT BATT THRESHOLD** button.
2. (the parameter is opened for modification)
3. Rotate the **MENU** knob to change to the desired value.
4. Press the **MENU** knob to accept the value and close the field for modification.

To enable /disable the alert to your headphone change the setting for **EXT BATT WARNING** button.

Setting Up Alerts to Your Headphones

The Nomad has the ability to present common alerts to the Operator's headphones only. That way you don't have to be constantly watching the LCD screen.

They can be accessed on the [Warnings Setup page](#) {p.51}. You can get there by pressing this sequence: (**MENU** knob once → **ENG Setup** button → **Warnings Setup** button).

To set the loudness of the beeps, click the **HP BEEP LOUDNESS** button and adjust the setting.

To have beeps for starting and stopping recording, ensure that the **HP BEEP REC/STOP** button is set to **ON**.

To have beeps for low power level, ensure that the **HP BEEP BATTERY** button is set to **ON**.

To have beeps for low remaining Primary Card disk space, ensure that the **HP BEEP LOW DISK** button is set to **ON**.

Date and Time

The Nomad has a clock and date store. To access it go to the [Set Date & Time page](#) {p.48}. You can get there by pressing this sequence: (**MENU** knob once → **ENG Setup** button → **Set Time Date** button)

The interface is straight forward enough. Just remember while you are entering the Hours, that you enter them in 24 hour format, as there is no AM/PM indicator.

Analog / Digital Audio Inputs

The Nomad supports both analog and digital audio inputs. The back of the unit has six XLR-3F analog inputs. See the [Back Side Description](#) {p.19} for the location of these connectors. The left side of the Nomad has a DE-15F digital input connector. See the [Left Side Description](#) {p.16} for the location of this connector. A breakout cable is required to use the digital inputs.

NOTE: A breakout cable can be purchased from Zaxcom as an option, or through many retailers. If you want to manufacture your own, pin-outs for the connectors are provided (see [AES Digital Input / Output Connectors \(DB-15\)](#) {p.70}).

Each of the six analog inputs can be used with a mic- or line-level signal.

The AES input breakout cable has a DB-15 connector that fans out to four separate XLR-3 style inputs. Each input is a stereo pair (Input 1,2; Input 3,4; Input 5,6; Input 7,8). You can use any combination of these inputs with your Nomad. The input number is written on each cable. You can assign these inputs to any channel or combination of channels.

CAUTION: Prior to connecting any analog input to the Nomad, you should ensure the mic / line input connectors are setup correctly. When connecting microphones, you should always connect them with the Nomad powered down (turned OFF).

This first part establishes basic operating parameters for each input. Be aware, any reference to the camera returns/line-level inputs are channels 7 – 10 and the mic-/line-level inputs are channels 1 – 6.

The first stop is the [Analog Input Channel Setup page](#) {p.35}. You can get there by pressing this sequence: (**SETUP** key once → press the number button for the channel to want to update/verify).

Switching Between Mic- and Line-Level Input (Analog Only)

To toggle a channel between Mic-level and Line-level, click on the **TYPE** button and turn the **MENU** knob to change the selected item. Once chosen, press the **MENU** knob to accept the change.

Enabling the High Pass Filter (Analog / Digital)

To set the highpass frequency, click the **HPF FREQ** button and turn the **MENU** knob to change the selected value. Once chosen, press the **MENU** knob to accept the change.

NOTE: The valid frequency range is 30 Hz to 240 Hz.

To enable the filter, click the **HPF** button and turn the **MENU** knob until **ON** is displayed and then press the **MENU** knob to accept the change. Obviously, if you wish to disable the filter, select **OFF**.

Enabling 48 VDC Phantom Power (Analog Only)

Some microphones require external power to operate. The Nomad supplies 48 VDC and 40mA divided between the mics. The Nomad does not supply 12T power, which is required by some older microphones. If you use microphones requiring 12T power, check with your local audio dealer for phantom to 12T power converters.

To enable phantom power, click on the **PHANTOM** button and change the parameter to **ON**.

IMPORTANT: To protect equipment from damage, the Nomad does not allow you to apply power to any channel set as a line-level input.

Adjusting the Trim (Analog / Digital)

To change the trim, click the **TRIM** button and adjust the parameter as required.

NOTE: The valid trim range is -20 dB to 30 dB.

Adjusting the Delay (Analog / Digital)

The delay in the Nomad provides a way to monitor various input sources that may come into the Nomad at slightly different times. For example, wireless microphones typically require 0 to 8 ms of delay to avoid phasing associated with mixing wired and wireless sources to a common mix track. The delay does not affect the input signals actual timecode; it simply allows the signal to align with other sources mixed with it. Both analog and digital inputs can have a delay added to them.

To change the delay, click the **DELAY** button and adjust the parameter as required.

Enabling the Limiter (Analog / Digital)

All of the input limiters use one common set of parameters. All that can happen here is to enable or disable it. To change its setting, click on the **LIMITER** button and change it as required.

Enabling the Notch Filters (Analog / Digital)

There are two notch filters, identical in function. The top line of each pair enables/disables that particular notch filter and the bottom line of each pair sets the center frequency.

To change the frequency, click the bottom **NOTCH#** button of the pair and change it as required.

To enable it, click the top **NOTCH#** button of the pair and change it to **ON**.

NOTE: The valid filter range is 20 Hz to 18000 Hz.

Inverting the Phase (Analog / Digital)

To change the phase, click on the **PHASE** button and change it to **INVERT**.

Analog Input Channel Setup

This first part establishes basic operating parameters for each input. Be aware, any reference to the camera returns/line-level inputs are channels 7 – 10 and the mic-/line-level inputs are channels 1 – 6.

Analog Audio Outputs

The Nomad has two different sets of output bus connectors, busses 1 - 4 are sent the XLR outputs and the first 4 TAs:

- TA-5M – six channels (see [Audio Input / Output Connectors \(TA-5\)](#) {p.69})
- XLR-3M – four channels (see [Audio Input / Output Connectors \(XLR-3\)](#) {p.69})

See the [Right Side Description](#) {p.18} for the location of these connectors.

Any combination of channel(s) can be assigned to each output.

Digital Audio Outputs

The Nomad has an optional AES input/output cable, with a DB-15 connector. This cable connects to the left side of the Nomad. See the [Left Side Description](#) {p.16} for the location of this connector.

The DB-15 connector fans out to four separate XLR-3 connectors, four inputs and four outputs. Each output is a pair (Output 1,2; Output 3,4; Output 5,6; Output 7,8). You can use any combination of these outputs with your Nomad. The output channel number is written on each cable. You can assign these outputs to any channel(s).

A breakout cable can be purchased from Zaxcom as an option, or through many retailers. A wiring diagram for the connector is provided in this manual if you want to manufacture your own breakout cable (see [AES Digital Input / Output Connectors \(DB-15\)](#) {p.70}).

The eight outputs can be assigned from any combination of channels.

Camera Return / Line-level Input Connector

The camera returns are two TA-5F connectors.

The returns can be fed by headphone level or line-level sources. The channels are independent so you can monitor audio from four different sources.

In all associated pages, these connectors appear as analog input 7 – 10.

Camera return cables are available from retailers. Pin-outs for it are provided in this manual if you want to manufacture your own (see [Audio Input / Output Connectors \(TA-5\)](#) {p.69} on the *right* side).

Assigning Inputs to Outputs and Tracks

The flexibility of Nomad is highlighted in the way it handles the routing. Routing on the Nomad allows you to assign any combination of inputs to any combination of channels and outputs. This section describes how to assign both inputs and outputs.

Assigning Inputs to Recording Tracks

A single digital or analog input can be assigned to any number of recording tracks, including sharing the same recording channel, using [Card Mix 1-4 page](#) {p.32}, [Card Mix 5-8 page](#) {p.33} and [Card Mix 9-12 page](#) {p.34}.

To move between the views on each page, press the **BUS** key.

To assign an input to a track, perform the following:

1. Based on to which track you want to assign the source, go to the [Bus Routing page](#) {p.29} and click the **CARD MIX 1-4**, **CARD MIX 5-8** or **CARD MIX 9-12** button.
2. If the desired source (top line) is not on the current view, press the **BUS** key to move to the next view.
3. Rotate the **MENU** knob to scroll through the matrix. Stop in the matrix, at the intersection of the input channel and output track, where you want to record that specific input. Press the **MENU** knob to cycle through the available crosspoints, which are:
 - Blank – no connection
 - **X** – post-fader
 - **P** – pre-fader
 - **X** w/ line on top – post-fader, phase inverted
 - **P** w/ line on top – pre-fader, phase inverted

NOTE: To add the optional phase invert items to the list, press the **STAR** key.

This is a global action. Once enabled in one page, it affects all pages that can include inversion.

When the power is cycled, this will reset to NO INVERSION mode.

4. Repeat steps 1 thru 3 to set up each additional connection.

Setting the Number of Tracks Recorded

Once the routing is assigned, you use the [Record Enables page](#) {p.37} to enable which tracks are recorded.

Perform the following to enable tracks for recording:

1. Click the button below each track you want recorded.
An **X** is placed in the button indicating it is enabled for recording.
2. Once a track is enabled for recording, pressing the button again disables recording of that track.

Assign Inputs to Output Channels

The [Output Bus Assign page](#) {p.30} makes assigning the audio inputs to output channels, identical to assigning audio inputs to recording channels. They use the same style matrix and have all the same settings.

Any combination of signals can be assigned to a vast number of output possibilities.

Chapter 4 – Settings for Recording

Once the input cables are connected, there are many setup decisions to be made. In the previous section, the basic settings for the input and output channels were explained. This section describes recording settings.

NOTE: There is no one way to setup a Nomad correctly, nor do any of the settings described here have to be done in any certain order.

Storing the Data

The size of the CF card determines how much data can be stored.

Selecting a folder

Go to the [Primary Folder page](#) {p.39} to indicate which folder will be used to store the audio files. Clicking on one of the folders flags that folder with a checkmark on the right side.

If you don't like the folder name, you can go to the [Primary CF page](#) {p.38} to change it. You have nine characters available. One option is to use the date of recording (i.e. YYYYMMDD format).

Setting the Pre-record Duration

From the point the Nomad is powered up, it is always processing data. Any sound coming in from any input is always being processed. When pre-record time is enabled, the signal is held in a buffer with a length specified by you until you press the **REC** key. At that time, all audio in the buffer is stored in the current Take. Once that is done, the audio coming from each of the inputs is stored in the current Take until the **STOP** key is pressed.

IMPORTANT: In order to use the pre-record functionality, you must have previously selected **48048** or lower in the [Sample-rate page](#) {p.46}.

To adjust the pre-record time, go to the [Mode page](#) {p.46}, click the **PRERECORD** button and select the desired length. (Valid range is **OFF**, **1** – **10** seconds.)

NOTE: The pre-record buffer is discarded after any of the following settings are changed:

- Sample-rate Reference
- Sampling-rate
- Timecode
- User-bits
- Frame-rate
- Track count

Setting up Tone

The Nomad provides a calibrated tone level, which can be placed on any output channel(s) or recorded track(s). This tone level is used to calibrate audio sent to cameras and Post Production facilities to ensure sound levels are correct.

Set the Tone Frequency

To adjust the tone frequency, go to the [ENG Setup page](#) {p.47}, click the **TONE FREQ** button and select the desired frequency.

NOTE: The industry standard is 1000 Hz.

Set the Tone Level

To adjust the tone level, click on the **TONE LEVEL** button and select the desired level.

NOTE: The industry standard is -20 dBFS.

Enable the Tone

To toggle tone generation on/off, press and hold the **SETUP** key for approximately one second.

Home page Configuration

There are eight different [Home page](#) {p.23} configurations. See [Figure 2-3](#) {p.25} for a picture of what each looks like.

Change the Home Page Configuration

Press the **STAR** key to change the [Home page](#) {p.23} configuration.

Store/Recall a Preferred Configuration

To store a configuration under the **COM** key, press and hold the **MENU** knob, and press the **COM** key. Everytime you press the **COM** key, the next configuration in sequence is displayed. When you are happy with the configuration being displayed, release the **MENU** knob.

If you have used the **STAR** key to move to another configuration and want to return to the **COM** key setting, simultaneously press the **MENU** knob and **COM** key.

Create Meaningful Track Meter Labels

Each of the card tracks can be labeled to identify who or what was recorded on a particular. Those labels can be seen on the Card Track Home page.

Meter labels do more than just provide an easy reference of what is on each track. This information is saved in the audio file's metadata and can be used in automated sound reports and is available to Post to identify each track. You have 16 characters available.

To change the meter labels, go to the [Track Names page](#) {p.50}, press one of the Track Name buttons. Once pressed, that track's label is opened with the [Enter Text page](#) {p.56}, allowing the efficient entry of the label.

Screen Backlight Brightness

The brightness of the screen can be changed by pressing the **LCD BRIGHTNESS** button and changing the value.

Monitoring with Headphones

Nomad is very flexible in routing its input, output and recording options. This flexibility is extended to the headphone monitoring area as well. You can create up to 14 Monitor Presets.

Retaining Your Headphone Mix with a Monitor Preset

In a lot of cases once you have setup monitoring options, you don't need to change them that often. But once changed, Nomad allows you to restore those settings with the press of a button. Once entered, they become known as Monitor Presets.

Create a Mix and Save it in a Monitor Preset

Perform the following:

1. Simultaneously press the **HEADPHONE** knob and the **MENU** knob.
2. (The [Headphone-I page](#) {p.35} is displayed, with the number of the setup.)
3. (Make note of the setup number)
4. Select the appropriate crosspoints:
 - a. Rotate the **MENU** knob to highlight the desired crosspoint.
 - b. Press the **MENU** knob to place an **X** in it.
 - c. Repeat a – b for each additional crosspoint.
5. If you want to create additional User-Presets, press the **HEADPHONE** knob and go to **step #3**,
6. Press and hold the **HEADPHONE** knob.
7. (The [Headphone-I page](#) is closed)
8. Go to the [Monitor Names page](#) {p.50} with this sequence:
(**MENU** knob once → **ENG Setup** button → **Monitor Names** button)
9. (The [Monitor Names page](#) (p.50) is displayed)
10. Select the appropriate setup number:
 - a. Rotate the **MENU** knob to highlight the desired line
 - b. Press the **MENU** knob to access the name.
11. (The [Enter Text page](#) {p.56} is displayed.)
12. Replace the existing setup number with your choice for the name (limit 6 characters).
13. After you have completed the name:
 - To accept the new name, press the **HEADPHONE** knob for 1 second.
(The current page is closed and the previous page is displayed with the newly created name.)
 - To reject the new name, press the **HEADPHONE** knob.
(The current page is closed and the previous page is displayed with the previously existing setup number.)
14. If you want to change additional names, go to **step #10**
15. Press the **HEADPHONE** knob several times to get to the [Home page](#) {p.23}.

Use a Mix in a Monitor Preset

From the [Home page](#) {p.23} you can cycle through the Monitor Presets using the **HEADPHONE** knob:

- press it to move to the NEXT preset
- press and hold it to move to the PREVIOUS preset

NOTE: You can only display Monitor Presets that have been created.

Timecode Related

Timecode settings are project specific. What follows should be considered with a grain of salt!

Timecode Thoughts

Generally, your primary soundcart recorder will be the Master Clock for the Set and your timecode will be counting in Free-Run mode, so go to the [Timecode Setup page](#) {p.28}, and change the **TC MODE** button to **FREE-RUN**.

There are a couple of common themes for entering timecode:

- Enter local real-time – this allows your timecode to indicate when Takes were actually shot.
 - Assuming the local date/time clock is accurate, go to the [Timecode page](#) {p.27} and press the **JAM TIME** button. This will tell Nomad to Jam the TC generator with the current clock time and count from there.
- Enter **00:00:00:00** at the start of the workday – this allows you to see how long you have been working today.
 - If you don't have an external clock connected, go to the [Timecode page](#) and press the **JAM TC** button. Since there is no TC source to jam with, it will load the TC generator with **00:00:00:00** and count from there.
 - If you have an external clock connected, set it to **00:00:00:00**.

User-bits Thoughts

There are a few themes for entering user-bits, usually determined by what Post wants. Some follow:

- Load with the shooting date (e.g. MM:DD:YY:xx, DD:MM:YY:xx) {x = doesn't matter or zero}
- Load with the shooting date and Take # (MM:DD:00:00 or DD:MM:00:00)
- Load with the Take # (00:00:00:00)

There is a concern when dealing with user-bits; will you be feeding timecode to a camera? If the answer is yes, it becomes important to feed a properly formatted date in the user-bits. With that comes the question of the date's format:

- Aaton equipment – use the DDMMYY format
- All other equipment – use the MMDDYY format

This is handled by going to the [Timecode Setup page](#) {p.28}, press the **UB DATE STYLE** button and select the appropriate format.

If you want to load the shooting date and Take #, go to the [Enter Timecode page](#) {p.27}, press the **ENTER UB** button and enter the month or day (2 digits), day or month (2 digits) and **0000**. To have the user-bits count the Takes, go to the [Timecode Setup page](#) {p.28}, press the **INCREMENT UBITS** button and change it from **OFF** to **ON**.

If you want to load just the Take #, and an external clock is not connected, go to the [Timecode page](#) {p.27} at the start of the shoot and press the **JAM UB** button. Since there is no user-bit source to jam with, it will load the UB storage with **00:00:00:00**.

Setting the Sampling-rate

Sampling-rate is more stable than timecode settings.

If you're recording sound elements to be used to construct a sound effect, you will use whatever Post specifies. If you're recording dialog and on-set sound effects, the standard comes into play: 48 kHz. There is still the possibility that Post might specify another rate, but that is unlikely.

Go to the [Sample-rate page](#) {p.46}, press the **SAMPLE RATE** button and select the appropriate value.

WARNING: After changing the sampling-rate, timecode **MUST** be re-jammed.

Chapter 5 – New System Capabilities

Introduction

Our Software Engineers make changes to the firmware to make it easier to use or to correct a problem that an Operator has encountered. But, every once-in-a-while, they come up with some truly ground-breaking additions to the system. This chapter is dedicated to letting all of you, the Owners and Operators, know about all of these new capabilities. For my part, I will do my best to explain how to use them.

Improvements

This being a brand new product, it has not had a chance to acquire improvements. Take a breath and wait for a few versions and see what develops.

Chapter 6 – Equipment Specifications

Hardware Based Properties

Analog Inputs

Channel Count	
Mic / Line	6
Line only	4 (camera return or mic inputs)
Connector	
Mic / Line	XLR-3F
Line only	TA-5F
Input Range	
Mic-level	–56 dBu to –26 dBu
Line-level	–10 dBu to +8 dBu
Phantom Power	48 VDC, 40 mA total combined (mic input only)
Impedance	
Mic-Level	10 k ohms
Line-Level	4 k ohms
ADC Bit-depth	24
ADC Dynamic Range	
W/O Compressor	135 dB
With Compressor	115 dB
Clipping Level	+28 dBu
Frequency Response	20 Hz to 22 kHz (48 kHz sampling-rate)
THD + Noise	0.0015%
Ext Slate Mic	
Connector	1/8" (3.5mm) stereo jack
Input Range	–56 dBu to –26 dBu

Digital Inputs (not available in Nomad-4)

Channel Count	8 (3 x AES-3 pair, 1 x AES-42 pair)
Connector	1 x mini DB-15 (DE-15) shared w/digital outputs
Sample-rate Converters	4 pairs

Analog Outputs

Channel Count	4 x balanced XLR-3M 6 x balanced (3 x TA-5M)
Tape/Mono	2 x unbalanced 1/8" (3.5 mm) stereo
Output Level	0 dBu at –20 dBFS
Clipping Level	+20 dBu
DAC Bit-depth	24
DAC Dynamic Range	115 dB
Impedance	30 ohms
Source	Mix/Direct (selectable)

Digital Outputs (not available in Nomad-4)

Channel Count	8 (4 AES pairs)
Connector	1 x mini DB-15 (DE-15) shared w/digital inputs
Source	Mix/Direct (selectable)

Headphones

Connector #1	1/4" stereo jack
Connector #2	1/8" (3.5mm) stereo jack
Dynamic Range	115 dB
Impedance	100 ohms (optimal)

Other Connectors

External Storage	1 x USB 2.0 (Nomad-8 & 12 only)
External Storage Power	5 watts
Serial/RS-422	1 x 4-pin USB style (Zaxcom proprietary)

Timecode	
Input	1 x BNC
Output	1 x BNC
External Power	1 x Switchcraft L712
External Slate Mic	1 x 1/8" (3.5mm) stereo jack
IFB RF	1 x SMA-F

Recording

Internal Storage	2 x CompactFlash card slots, 1 x MicroSD card slot
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Timecode Reader / Generator

Clock Accuracy	1.54 PPM (1 frame out in 6 hours)
Input Voltage Range	1 – 4 VPP
Output Voltage	2 VPP

Power

Internal	6 x AA (7 – 9 VDC, 2 – 4 hours of use {NiMH})
External	10 to 18 VDC (1/2 A @ 12 VDC)

ZaxNet RF Interface (not available in Nomad-4)

Function	Transmit or Receive
RF Power Output	50 mW
RF Modulation	Digital Spread Spectrum
RF Frequency Range	2.403 – 2.475 GHz
RF Frequency Step	0.001 GHz (1 MHz)
RF Bandwidth	1 MHz
Channel Separation	2 MHz
Emission Designator	180KV2E
FCC Part	CFR Title 47, Part 18

Misc

Display	Full color, sunlight readable LCD touchscreen
Internal Slate Mic	Yes
Compatible w/Mix-8	Yes
Compatible w/Mix-12	No

Physical

Operating Temp Range	-10 to +120F
Size (H x W x D) (while looking at screen)	2.0" x 9.9" x 7.0" (50.8mm x 251.5mm x 177.9mm)
Weight (w/batteries)	3.8 lbs (1.72 kg)

Controls

On Front

Faders	6 x rotary
Multi-function	9 x bubble keys

On Right Side

Power	1 x slide switch
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Software Based Properties

Internal Mixer

Mixer Cross-points	16 in / 16 out (pre-fader, post-fader, phase inversion)
Internal Processing	32-bit floating point DSP

Effects

Input Limiter	(A x 10, D x 8)
Type	Soft Knee
Attack	1 to 100 ms
Decay	0 to 100 ms
Threshold	-20 to 0 dB
Ratio	1.0:1 to 20.0:1
Input Notch Filter	(A x 10, D x 8)
Bands	2
Freq Range	20 Hz to 18 kHz
Q	9.9 (hardcoded)
Track Limiter	1 set of settings across (*) tracks
Attack	1 to 100 ms
Decay	0 to 100 ms
Threshold	-20 to 0 dB
Ratio	1.0:1 to 4.0:1
Make-up Gain	-12 to +12 dB
Input Highpass Filter	(A x 10, D x 8)
Freq. Range	Off or 40 to 240 Hz
Input Delay	(A x 10, D x 8)
Time Range	0 to 100 ms
Output Limiter	1 set of settings across 6 outputs
Attack	1 to 100 ms
Decay	0 to 100 ms
Threshold	-20 to 0 dB
Ratio	1.0:1 to 4.0:1
Make-up Gain	-12 to +12 dB

Recording

Track Count	(*)
Bit-depth	
Primary Slot	24
Mirror Slot(s)	16 / 24
Sampling-rates (kHz)	44.1, 47.952, 48, 48.048, 88.2, 96
Card Format	
Primary CF Slot	MARF (Mobile Audio Recording Format) II
Mirror CF Slot	FAT32
Mirror MicroSD Slot	FAT32
Ext. USB Device	FAT32
File Formats	
Primary CF Slot	.ZAX
Mirror CF Slot	BWF-M, BWF-P
Mirror MicroSD Slot	MP3
Ext. USB Device	BWF-M, BWF-P or MP3
Dual Disk Recording	Yes
Pre-record Duration	0 to 10 seconds (48.048 kHz and below)

Timecode Reader / Generator

Timecode Type	SMPTE
Timecode Frame-rates	23.98, 24, 25, 29.97NDF, 29.97DF, 30NDF, 30DF

(* = Model Dependent – 4, 6, 8 or 12)

Chapter 7 – Connector Pinouts

This section provides the pinouts for the connectors on the Nomad. The mating cable connector part number is also provided for the less common connectors.

NOTE: All of the diagrams in this chapter show the solder side of each connector.

Audio Input / Output Connectors (XLR-3)

When building an analog cable, use balanced XLR cable.

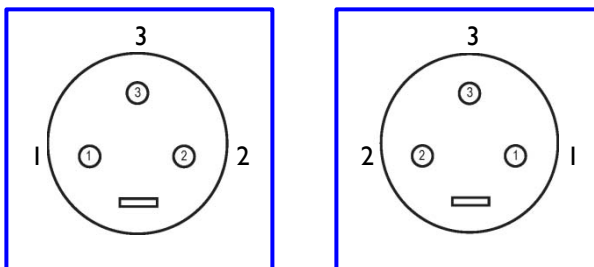


Figure 7-1 XLR-3M (Left) and XLR-3F (Right) Pin Numbering

Pin	Description	Pin	Description	Pin	Description
1	Ground (X – shield)	2	(+) / Hot (L – live)	3	(-) / Cold (R – return)

Table 7-1 XLR-3 Pin Description

Power Connector (Hirose-4 Connector)

Pin	DESC	Pin	DESC
1	(-) / Cold	2	N/C
3	N/C	4	(+) / Hot

Table 7-2 Hirose-4 Pin Description

Audio Input / Output Connectors (TA-5)

Pin	DESC	Pin	DESC
1	Ground	2	Channel A +
3	Channel A -	4	Channel B +
5	Channel B -		

Table 7-3 TA-5F & TA-5M Pin Description

Mono & Tape Output Connectors (1/8" TRS)

Pin	Description	Pin	Description	Pin	Description
Tip	+	Ring	N/C	Sleeve	Ground

Table 7-4 Mono & Tape Output Pin Description

NOTE: Since the ring connector is not being used, you can use a TS plug.

Slate Microphone Input Connector (1/8" TRS)

Pin	Description	Pin	Description	Pin	Description
Tip	(+) / Hot (biased to 5V)	Ring	(-) / Cold (biased to 5V)	Sleeve	Ground

Table 7-5 Slate Mic Input Pin Description

NOTE: This is a balanced input. It can be used with dynamic microphones. It can also be used unbalanced with powered low voltage microphones.

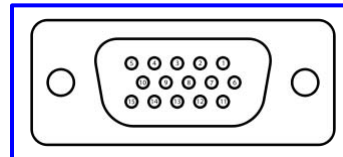
Headphone Output Connectors (1/4" TRS or 1/8" TRS)

Pin	Description	Pin	Description	Pin	Description
Tip	Left Channel	Ring	Right Channel	Sleeve	Ground

Table 7-6 Headphone Output Pin Description

AES Digital Input / Output Connectors (DB-15)

The Nomad uses a mini DB-15 (AKA: DE-15) connector for the AES (digital) input and output connectors.



Top row pins: 5, 4, 3, 2, 1
 Middle row pins: 10, 9, 8, 7, 6
 Bottom row pins: 15, 14, 13, 12, 11

Figure 7-2 Mini DB-15M Input and Output Connector Pin Numbering

Pin	DESC	Pin	DESC
1	RX Ch3/4, Pin-2	9	TX Ch3/4, Pin-3
2	RX Ch1/2, Pin-2	10	TX Ch3/4, Pin-2
3	TX Ch5/6, Pin-2	11	RX Ch3/4, Pin-3
4	RX Ch7/8, Pin-2	12	RX Ch1/2, Pin-3
5	RX Ch5/6, Pin-2	13	TX Ch5/6, Pin-3
6	TX Ch1/2, Pin-3	14	RX Ch7/8, Pin-3
7	TX Ch1/2, Pin-2	15	RX Ch5/6, Pin-3
8	GND		

Table 7-7 Mini DB-15M Pin Description

Chapter 8 – Firmware Information

Firmware

Each Nomad is shipped with the latest firmware version installed. As newer firmware becomes available, it can be downloaded from the Zaxcom website (http://zaxcom.com/software_updates.htm). Each time a unit is powered up, the firmware version number is displayed briefly on the LCD screen.

Brickproof Updating

If for some reason the installed software becomes corrupted, Nomad can still boot directly from a copy on the Mirror card.

CAUTION: well ALMOST brickproof ... You can brick the unit if power is lost during the last two seconds of the bootloader burn process ([Burn Bootloader page {p.53}](#)).

How to Build the Emergency Boot Card (your OH SH** card):

1. Using a PC, MAC or the Nomad's Mirror Slot, format a spare CF card as FAT32.
2. Save the firmware (.bin file) to the CF card using a media adapter on your PC or MAC.
3. Label the card and reserve it for "Special Occasions".

How to Boot from the Emergency Boot Card:

1. Power down the unit.
2. Insert your emergency boot card into the mirror slot.
3. Press and hold the **MENU knob**, and turn on the unit's power.
4. Once the [Home page {p.23}](#) comes up, you can release the **MENU knob**.
5. At this point you can remove your boot card and replace it with your current mirror card.

NOTE: Since we all like to have backup plans, consider keeping a FAT32 formatted card with the version you installed on Nomad. You know the old saying: "It's better to have it and not need it, than to need it and ..."

Advantages to Upgrading the Firmware

By upgrading the software, the range and feature set have and will continue to dramatically increase over time. Zaxcom has a reputation for constantly adding additional features and user suggestions during the product's lifetime. This ensures that your digital recorder will perform better and better, the longer you own it.

Upgrading the Firmware in Each Unit

Use the following steps to update the firmware in your Nomad. The program file is always named **NomadProgFile_vX.XX.bin** (X.XX is replaced with the version #).

1. Download the updated Firmware.
2. Using a PC, Mac or the Nomad's Mirror Slot, format a spare CF card as FAT32.
3. Save the firmware to the CF card using a media adapter on your PC/MAC.
4. Power down the unit.
5. Insure that a set of fully charged batteries are installed.
6. Install the CF card into the mirror slot.
7. Press and hold the **STAR** key while turning on the unit.
8. While the unit is starting up, make note of the bootloader version.
9. Once the [Home page {p.23}](#) comes up, you can release the **STAR** key.
10. Next, verify the Software Version in the [About Nomad page {p.45}](#) matches what you just installed.
11. Do you still remember the bootloader version? If it has been more than one or two installs since you last updated the bootloader, you should go to the [Advanced Setup page {p.52}](#) and click on **BURN BOOT LOADER** button. This will prevent unexpected things from happening.

NOTE: Be aware ... You don't have to go look for a separate file containing the bootloader. It is always built into the firmware you just installed.

12. It would be wise to perform the [Factory Reset page {p.44}](#). If it has been several versions since the last time it was run, then you should definitely do it.

13. Cycle the power to run on the newly installed firmware.
14. You have successfully completed the installation. Enjoy the fruits of our Engineer's labors on your behalf.

Firmware History

Vx.xx (IFB Vx.xx) YYYY-MM-DD
Fixed ??????????

Vx.xx (IFB Vx.xx) YYYY-MM-DD
Fixed ??????????

V2.61 (IFB V0.26) 2011-12-15
Changed Contains new IFB software
NOTE After installing the new IFB firmware (in the ZaxNet Setup Menu) you should notice improved IFB transmit audio quality

V2.60 2011-12-14
Added "+I" box in text editor to allow incrementing scene or take
Changed set default IFB TC jam mode to AutoJam (2)
Removed SLATE DISPLAY from menu (use TC button)

V2.59 2011-12-13
Fixed prevented user from updating Zaxnet firmware if AUD is less than 13
Fixed reduced meter count in CARD home screen if some tracks are not enabled

V2.58 2011-12-13
Fixed take update problem (was always forced to "I")
Fixed some false start problems
Fixed problem with deleting segment and losing STN info
Added NEXT seg indicator on metadata page
Changed headphone beeps are now 2 kHz so they are not mistaken for tone
Added 3 second segment number display after pressing RECORD key and after boot up

V2.57 2011-12-12
Fixed after Goto Folder (and boot up) we default to last seg now instead of 1st seg
Fixed reset take to 1 when scene changes

V2.56 2011-12-09
Changed made long menu knob press go backwards thru pan setting selection on PAN Home page
Changed made TC key jump to SLATE DISPLAY page and then TC pages

V2.55 (IFB V0.25) 2011-12-09
Changed better audio interpolation (IFB only works at 48 kHz sample-rate!)
NOTE sent with mike's nomad #1

V2.54 (IFB V0.24) 2011-12-08
Added IFB test tone (debug code) command (transmits tone from the IFB board)

V2.53 2011-12-08
Added IFB power-roll support
Added IFB TX-slaved support
Fixed some IOcfg issues
Changed limited IOcfg to valid values

V2.52 (IFB V0.22) 2011-12-07
Fixed INDIG meter text for DIG #1 (was labeling meter as INPUT 11)
Changed text for AUX BUS ASSIGN page
Added sending TC and Ubits IFB option processor

V2.51 (IFB V0.21) 2011-12-07
Fixed ZaxNet wireless gain seems to work

V2.49E (IFB V0.20) 2011-12-06
Fixed popup warning window
Added support for more IFB commands
Fixed mirror folder / mode remembering after power up

BUG NOTE mirroring does not turn on if there is no valid mirror card at boot up and it does not turn on until the mirror card is mounted

V2.49B 2011-12-05

- Added extra IFB menus to ADVANCED menu
- Added IFB enable page
- Changed input config must be 8 or higher for IFB page to work

V2.46 2011-11-17

- Added option to remember mirror mode after power cycle (if a card is inserted during boot)

V2.45 2011-11-17

- Changed Playback page now has meter (all disk meters combined) and track time

V2.44 2011-11-16

- Changed playback page has segment position indicator and scrub control

V2.43 2011-11-15

- Changed smoothed trim compensation for both types of input boards
- Added Playback control menu to Main Menu

V2.42 2011-11-15

- Fixed jam date to user-bits again.
- Fixed user-bits not remembering after a power down
- Added stored REC_RUN timecode in memory for power cycle
- Changed digital and analog trim handler to be smoother
- Fixed problem with inverting phase on an input channel
- Fixed made PLAY page come up only when play mode is triggered

V2.41 2011-11-14

- Changed no longer allow compressor ratio setting to go down to 1.0
- Fixed user-bits ordering (mmdyy00 was ddmmyy00)
- Added primitive Playback page (triggered on any press of PLAY button)

V2.40 2011-11-14

- Fixed INPUT CONFIGURATION text
- Fixed EXT vs INT battery warning problem
- Changed smoothed digital gain trim to avoid zipper sounds when changing digital trim
- BUG NOTE outputs cannot be assigned to any disk track yet (all software versions)

V2.39 2011-11-12

- Fixed digital gain was missing on trim adjustment
- Added Mirror Mode Conflict Popup screen
- Added Record Mode Conflict Popup screen

V2.38 2011-11-12

- Fixed un-looped check sum problem with dir struct,
- Changed no longer pre-init channel names in erase hard disk
- fixed Name Primary Folder (would ignore your folder name if it thought it was too long)
- fixed COM button works now

V2.37 2011-11-10

- Added False Start dialog: press STOP (while in STOP mode) to enter false start screen
- fixed potential oddity in NORMAL_MIRROR_MODE
- added UI support for new LONG KEY system
- fixed problem with Dane-Elec 4GB cards not handling 512 sector reads
- added highlighted meter trim diamond for auto-trim

V2.36 2011-11-10

- Fixed PFL text overlapping on the non-compact home screen
- Fixed current folder not remembering itself after a power cycle
- Fixing Scene Take Note auto-creation oddities

Chapter 9 – Zaxcom Warranty Policy and Limitations

Zaxcom Inc. values your business and always attempts to provide you with the very best service.

No limited warranty is provided by Zaxcom unless your Zaxcom Nomad ("Product") was purchased from an authorized distributor or authorized reseller. Distributors may sell Products to resellers who then sell Products to end users. Please see below for warranty information or obtaining service. No warranty service is provided unless the product is returned to Zaxcom Inc. or a Zaxcom dealer in the region where the Product was first shipped by Zaxcom.

Warranty Policy

The Product carries a Standard Warranty Period of one (1) year.

NOTE: The warranty period commences from the date of delivery from the Zaxcom dealer or reseller to the end user.

There are no warranties which extend beyond the face of the Zaxcom limited warranty. Zaxcom disclaims all other warranties, express or implied, regarding the Products, including any implied warranties of merchantability, fitness for a particular purpose or non-infringement. In the United States, some laws do not allow the exclusion of the implied warranties.

Return Material Authorization (RMA)

No Product may be returned directly to Zaxcom without first contacting Zaxcom for a Return Material Authorization ("RMA") number. If it is determined that the Product may be defective, you will be given an RMA number and instructions for Product return. An unauthorized return, i.e. one for which an RMA number has not been issued, will be returned to you at your expense. Authorized returns are to be shipped prepaid and insured to the address on the RMA in an approved shipping container. Your original box and packaging materials should be kept for storing or shipping your Product. To request an RMA, please visit the Zaxcom Repair Services page (http://www.zaxcom.com/support_repair_services.htm) and complete the form. You will receive an email or telephone call with the RMA #. Please write the RMA# on the front of the package. If you don't have internet access, you may request an RMA # by telephone. Zaxcom will return the warranty repair via 2nd day UPS or FedEx at their discretion. If overnight service is required, a FedEx or UPS account number must be provided to Zaxcom to cover shipping expenses.

Warranty Limitations

Zaxcom's limited warranty provides that, subject to the following limitations, each Product will be free from defects in material and workmanship and will conform to Zaxcom's specification for the particular Product.

Limitation of Remedies

Your exclusive remedy for any defective Product is limited to the repair or replacement of the defective Product.

Zaxcom may elect which remedy or combination of remedies to provide in its sole discretion. Zaxcom shall have a reasonable time after determining that a defective Product exists to repair or replace a defective Product. Zaxcom's replacement Product under its limited warranty will be manufactured from new and serviceable used parts. Zaxcom's warranty applies to repaired or replaced Products for the balance of the applicable period of the original warranty or thirty days from the date of shipment of a repaired or replaced Product, whichever is longer.

Limitation of Damages

Zaxcom's entire liability for any defective Product shall, in no event, exceed the purchase price for the defective Product. This limitation applies even if Zaxcom cannot or does not repair or replace any defective Product and your exclusive remedy fails of its essential purpose.

No Consequential or Other Damages

Zaxcom has no liability for general, consequential, incidental or special damages. These include loss of recorded data, the cost of recovery of lost data, lost profits and the cost of the installation or removal of any Products, the installation of replacement Products, and any inspection, testing or redesign caused by any defect or by the repair or replacement of Products arising from a defect in any Product.

In the United States, some states do not allow exclusion or limitation of incidental or consequential damages, so the limitations above may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Your Use of the Product

Zaxcom will have no liability for any Product returned if Zaxcom determines that:

- The Product was stolen.
- The asserted defect:
 1. Is not present,
 2. Cannot reasonably be fixed because of damage occurring when the Product is in the possession of someone other than Zaxcom, or
 3. Is attributable to misuse, water damage, improper installation, alteration, including removing or obliterating labels and opening or removing external covers (unless authorized to do so by Zaxcom or an authorized Service Center), accident or mishandling while in the possession of someone other than Zaxcom.
- The Product was not sold to you as new.
- Non Zaxcom supplied parts and/or modifications were installed.

Additional Limitations on Warranty

Zaxcom's warranty does not cover products, which have been received improperly packaged, altered or physically abused.

